U.S. Coast and Geodetic
Survey
Terrestrial magnetism

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

O. H. TITTMANN

SUPERINTENDENT

TERRESTRIAL MAGNETISM

RESULTS OF MAGNETIC OBSERVATIONS MADE BY THE UNITED STATES COAST AND GEODETIC SURVEY BETWEEN JULY 1, 1911, AND DECEMBER 31, 1912

BY

R. L. FARIS

Inspector of Magnetic Work; Assistant, Coast and Geodetic Survey

SPECIAL PUBLICATION No. 15

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CONTENTS.

	Page.
Introduction	5
Distribution of observations on land	5
Secular change of the magnetic declination	6
Distribution of observations at sea	8
Instrumental corrections	8
Reductions of observations	9
Arrangement of tables	9
Magnetic observations on land, Table I	10
Magnetic observations at sea, Table II	21
Descriptions of stations:	
Alabama	23
Alaska	27
Arkansas	28
California	31
Delaware	31
Florida	32
Georgia	33
Illinois	44
Indiana	46
Iowa	48
Kansas	51
Kentucky	52
Minnesota	57
Mississippi	59
Missouri	62
Nebraska	65
New Jersey	67
New York	68
North Carolina	69
North Dakota	70
Ohio	72
Oklahoma	72
Pennsylvania	76
Philippine Islands	77
Porto Rico	78
South Carolina	79
South Dakota	82
Tennessee	83
Texas	88
Virginia	97
Washington	101
West Virginia	101
Foreign countries	101

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RESULTS OF MAGNETIC OBSERVATIONS MADE BY THE UNITED STATES COAST AND GEODETIC SURVEY BETWEEN JULY 1, 1911, AND DECEMBER 31, 1912.

By R. L. Faris,
Inspector of Magnetic Work; Assistant, Coast and Geodetic Survey.

INTRODUCTION.

In 1882 the results of magnetic observations made by this Bureau prior to 1881, together with descriptions of stations, were published as Appendix 9, Report for 1881. From that time to 1902 the results were published only in connection with a discussion of the distribution or secular change of one or more of the three magnetic elements. In "Magnetic Declination Tables and Isogonic Charts for 1902," declination results were given for all stations occupied up to that time and descriptions of stations for the points occupied subsequent to 1881. From 1903 to 1911 there has been published annually an appendix to the Superintendent's annual report, giving the results of magnetic observations made during the fiscal year (July to June) covered by the report. The use of the fiscal year proved somewhat inconvenient for publication purposes, as the field season of a magnetic observer almost always began before July 1 and ended after that date, so that part of a season's work would be published in one report and the remainder in another.

When in 1912 it was decided to confine the annual report of the Superintendent to administrative matters and to publish separately the scientific results which had formerly appeared as appendixes to the report, the time was deemed opportune to change from the *fiscal* year to the *calendar* year in the publication of the results of magnetic observations. The present publication contains the results of observations made between July 1, 1911, and December 31, 1912, and therefore embraces the greater part of the work of two calendar years, as there is much more field work done in the second half of the year than in the first.

Five magnetic observatories have been in operation throughout the period, at Cheltenham, Md.; Sitka, Alaska; near Honolulu, Hawaii; on Vieques Island, P. R.; and near Tucson, Ariz. Their records have furnished means for reducing to mean of day the values of declination obtained from the field observations. There will be found in the tables the values of the magnetic elements for each of the observatories for the year 1912.

OBSERVATIONS ON LAND AND THEIR DISTRIBUTION.

The distribution of the stations on land is shown in the following table, from which it will be seen that observations were made in 35 States and Territories. Numerous old stations were reoccupied in order to determine the secular change of the magnetic elements.

Summary of results on land.

State	Localities	Stations	Old localities reoccupied	Declination results	Dip results	Intensity results
Alabama	20	20	2	20	20	20
Alaska	48	48	5	53	8	8
Arizona	1	1	1	3	3	3
Arkansas	19	19	2	19	19	19
California	2	2	2	3	3	3
Delaware	5	5	1	5	5	5
Florida	3	4	3	4	4	4
Georgia	54	56	6	55	56	55
Hawaii	1	1	1	1	1	1
Illinois	10	10	2	10	10	10
Indiana	14	14	1	14	14	14
Iowa	14	15	2	15	14	14
Kansas	2	2	2	2	2	2
Kentucky	30	31	3	31	31	31
Maryland	1	1	1	10	11	10
Minnesota	12	12	1	12	12	12
Mississippi	19	19	0	19	19	19
Missouri	16	16	1	16	16	16
Nebraska	10	10	1	10	10	10
New Jersey	7	7	0	7	7	7
New York	6	6	1	6	6	6
North Carolina	5	8	4	8	8	8
North Dakota	7	7	1	7	7	7
Ohio	1	1	1	1	1	1
Oklahoma	23	23	5	23	23	23
Pennsylvania	5	5	1	5	5	5
Philippine Islands	16	16	7	16	8	8
Porto Rico	7	7	7	7	7	7
South Carolina	14	15	1	15	15	15
South Dakota	8	8	2	8	8	8
Tennessee	27	28	3	28	27	27
Texas	51	53	4	53	52	52
Virginia	26	26	2	26	21	21
Washington	2	2	1	3	2	2
West Virginia	1	1	0	1	1	1
Foreign countries	7	8	4	10	12	12
Total	494	507	81	526	468	466

SECULAR CHANGE OF THE MAGNETIC DECLINATION.

A comparison of the declination results at "repeat" stations occupied during the 18 months covered by this report with the results of earlier observations in the same localities is presented in the following table. The letter after the name of a station indicates, (*a*) that the old station was reoccupied exactly, (*b*) that the new station was very near the old one, and (*c*) that the new station was some distance (a quarter of a mile or more) from the old one. A tabular value of annual change refers approximately to the middle of the period from which it is derived. A plus sign indicates increasing east declination or decreasing west declination, a minus sign the reverse.

Comparison of declination results at repeat stations.

State and station	Former observation		Last observation		Average annual change
	Date	Declination	Date	Declination.	
		° ′		° ′	′
New York:					
Albany (*a*)	1910, Jy	11 34.5 W	1912, Je	11 49.6 W	−7.9
Pennsylvania:					
Williamsport (*a*)	1907, Jy	7 06.2 W	1912, Je	7 34.4 W	−5.7
Delaware:					
Seaford (*a*)	1910, Oc	6 15.2 W	1912, Au	6 23.4 W	−4.5
Maryland:					
Cheltenham (*a*)	1911, Je	5 45.2 W	1912, Je	5 49.6 W	−4.4

Comparison of declination results at repeat stations—Continued.

State and station	Former observation		Last observation		Average annual change
	Date.	Declination	Date	Declination	
		° ′		° ′	′
Virginia:					
Charlotte C. H. (*c*)	1901, No	2 42.5 W	1911, No	3 08.6 W	−2.6
Lynchburg (*a*)	1910, Ap	3 07.5 W	1912, Jy	3 14.1 W	−2.9
North Carolina:					
Lumberton (*c*)	1899, No	1 12.0 W	1911, No	2 00.1 W	−4.0
Gatesville (*a*)	1899, Ap	3 45.2 W	1912, My	4 29.6 W	−3.4
Salisbury (*a*)	1905, Ap	0 33.4 W	1912, My	0 57.8 W	−3.4
Marshall (*a*)	1906, Au	0 16.4 W	1912, My	0 27.4 W	−1.9
South Carolina:					
Florence (*a*)	1908, Mh	0 46.8 W	1912, Ap	0 58.7 W	−2.9
Georgia:					
Bainbridge (*b*)	1905, Ja	2 15.4 E	1911, Au	2 13.1 E	−0.4
Louisville (*a*)	1905, Ja	1 46.8 E	1911, Se	1 36.6 E	−1.5
Milledgeville (*a*)	1908, Mh	2 37.1 E	1911, Se	2 35.6 E	−0.4
La Grange (*a*)	1905, Ja	2 08.2 E	1911, Oc	2 03.8 E	−0.7
Augusta (*a*)	1900, Mh	0 44.4 E	1912, My	0 26.8 E	−1.4
Florida:					
Key West (*a*)	1906, Ap	2 30.0 E	1911, Jy	2 27.1 E	−0.6
Jupiter (*b*)	1906, Mh	1 41.7 E	1911, Au	1 32.4 E	−1.7
Miami (*a*)	1903, Ap	1 39.7 E	1911, Au	1 30.0 E	−1.2
Alabama:					
Selma (*a*)	1908, Ap	2 57.8 E	1911, Jy	2 57.8 E	0.0
Mobile (*a*)	1908, Ap	4 33.4 E	1912, Au	4 40.2 E	+1.6
Kentucky:					
Williamsburg (*b*)	1900, Je	0 51.9 E	1912, Se	0 15.5 E	−3.0(?)
Falmouth (*a*)	1903, Se	1 20.9 E	1912, Se	1 05.0 E	−1.8
Winchester (*a*)	1910, Oc	0 10.8 W	1912, Oc	0 12.0 W	−0.6
Tennessee:					
Franklin (*a*)	1909, Jy	4 01.6 E	1912, My	4 05.6 E	+1.4
Nashville (*a*)	1909, Mh	3 37.8 E	1911, No	3 40.4 E	+1.0
Indiana:					
Logansport (*a*)	1909, Se	1 42.4 E	1911, Au	1 31.7 E	−5.6
Illinois:					
Springfield (*a*)	1907, Au	4 17.2 E	1911, Au	4 17.9 E	+0.2
Cairo (*a*)	1908, Je	4 37.2 E	1911, Se	4 40.0 E	+0.9
Iowa:					
Des Moines (*a*)	1910, Je	7 57.1 E	1912, Au	7 59.8 E	+1.2
Sibley (*a*)	1909, Au	9 30.7 E	1912, Au	9 32.3 E	+0.5
Minnesota:					
St. Paul (*b*)	1907, Au	8 45.0 E	1911, Jy	8 49.8 E	+1.2
North Dakota:					
Pembina (*a*)	1909, Oc	11 27.8 E	1911, Jy	11 31.7 E	+2.2
South Dakota:					
Huron (*a*)	1907, Jy	11 11.9 E	1911, Au	11 34.8 E	+5.6
Yankton (*a*)	1909, Au	11 23.4 E	1912, Se	11 29.6 E	+2.0
Nebraska:					
Nebraska City (*a*)	1909, Au	9 22.9 E	1912, Jy	9 27.1 E	+1.4
Kansas:					
Winfield (*a*)	1904, Jy	9 26.5 E	1911, Jy	9 38.8 E	+1.8
Leavenworth (*b*)	1909, Au	8 28.1 E	1912, Jy	8 33.6 E	+1.9
Oklahoma:					
Guthrie (*a*)	1906, Oc	9 37.5 E	1911, Jy	9 49.6 E	+2.5
Mangum (*b*)	1904, De	10 26.1 E	1912, Oc	10 51.9 E	+3.3
Vinita (*a*)	1904, Oc	8 21.7 E	1912, Oc	8 48.4 E	+3.3
Poteau (*c*)	1905, No	8 01.9 E	1911, Jy	8 11.6 E	+1.7
Arkansas:					
Little Rock (*a*)	1908, My	6 47.4 E	1912, Je	6 54.3 E	+1.7
Malvern (*a*)	1901, My	6 05.1 E	1912, No	6 22.2 E	+1.5
Texas:					
McKinney (*a*)	1902, Au	8 37.6 E	1911, Au	9 00.1 E	+2.5
Texarkana (*c*)	1901, My	7 18.8 E	1912, Je	7 42.3 E	+2.1
Austin (*a*)	1908, My	8 26.6 E	1912, Jy	8 32.6 E	+1.4
Beeville (*b*)	1906, Ja	8 58.3 E	1912, Jy	9 17.8 E	+3.0
Arizona:					
Tucson (*a*)	1910, Je	13 25.8 E	1912, Je	13 33.5 E	+3.8
California:					
Goat Island (*a*)	1909, Ap	17 53.3 E	1911, De	18 03.7 E	+3.9
San Diego (*a*)	1908, Fe	14 55.9 E	1912, My	15 14.3 E	+4.3

OBSERVATIONS AT SEA AND THEIR DISTRIBUTION.

Magnetic observations at sea were secured by the *Bache* and *Hydrographer* along the south Atlantic coast, by the *Patterson, Explorer, Gedney*, and *McArthur* in connection with surveying work in Alaska, and an important series by the *Patterson* on her cruise from San Francisco to Panama and return.

Summary of results at sea.

Steamer	General region	Results from swings			Results from course observations		
		Declination	Dip	Intensity	Declination	Dip	Intensity
Bache	Atlantic coast	4	6	6	0	0	0
Hydrographer	do	20	0	0	0	0	0
Explorer	Pacific coast	5	8	7	1	0	0
Gedney	do	5	0	0	0	0	0
McArthur	do	5	0	0	2	0	0
Patterson	do	24	26	26	8	8	8
Total		63	40	39	11	8	8

INSTRUMENTAL CORRECTIONS.

Most of the instruments used in the field work have been compared with the standard instruments at Cheltenham during the 18 months, but the corrections used for the previous year's work require little change.

Corrections to magnetometers.

Magnetometer	Correction to east declination	Correction to H in parts of H
8	0.0	0.0000
10	0.0	+0.0009
11	0.0	0.0000
17	0.0	0.0000
18	0.0	+0.0016
19	0.0	−0.0010
20	0.0	+0.0018
22	+0.9	+0.0016
29	0.0	−0.0010
30	0.0	0.0000
31	0.0	−0.0005
36	0.0	+0.0011
37	0.0	+0.0022

Corrections to dip circles.

Number	Pattern	Needles	Designation	Correction
				′
15	Kew-Casella	5 and 6	15.56	0.0
23	Kew-Casella	3 and 4	23.34	−1.4
23	Kew-Casella	4 and 2	23.42	−0.7
30	Kew-Dover	1 and 2	30.12	0.0
31	Kew-Dover	1 and 2	31.12	−1.9
31	Kew-Dover	3 and 4	31.34	0.0
32	L. C.-Dover	1 and 2	32.12	+6.0
34	L. C.-Dover	5 and 6	34.56	0.0
35	L. C.-Dover	1 and 2	35.12	+2.3
36	Kew-Dover	1 and 2	36.12	−1.3
5676	Kew-Casella	1 and 2	76.12	−4.4
5678	Kew-Casella	1 and 2	78.12	−1.0

REDUCTION OF OBSERVATIONS.

Each value of the magnetic declination has been reduced to the mean of the month in which the observation was made with the aid of the continuous observations at the nearest magnetic observatory, allowance being made for the change in diurnal range with change in magnetic latitude. No attempt has been made to correct the dip and intensity results for diurnal variation.

ARRANGEMENT OF TABLES.

LAND OBSERVATIONS.

The values of declination, dip, and horizontal intensity presented in Table I are arranged by States alphabetically, and the results for each State are given in the order of increasing latitudes. The latitudes and longitudes are in most cases the result of solar observations made with the small theodolite which forms a part of the magnetometer. In default of observations or a chart, the geographical coordinates were scaled from the best available map, either a topographic sheet of the United States Geological Survey, a post-route map, or some other State map. In such cases only the nearest whole minute of latitude or longitude is given. The horizontal intensity is expressed in terms of the one hundred thousandth part of a C.G.S. unit of intensity of magnetic force, termed a *gamma* and designated by the Greek letter γ.

In order to include the desired amount of information in the available space the following abbreviations have been adopted. The last two figures of the year are given with the month and day. The months have been abbreviated as follows:

January	Ja	May	My	September	Se
February	Fe	June	Je	October	Oc
March	Mh	July	Jy	November	No
April	Ap	August	Au	December	De

Where the number in the magnetometer column is in italics, the declination observations were made with a compass declinometer. The letter *c* in that column indicates that the horizontal intensity was computed from observations of dip and total intensity with the dip circle and that the declination was determined with the compass attachment of the dip circle.

The observer is indicated by the initials of his name. The names of the observers are as follows:

F. L. Adams	W. B. Gilmore	S. H. Shapiro
A. C. Baldwin	S. A. Graham	D. X. Shubin
J. R. Benton	G. Hartnell	A. M. Sobieralski
H. Bernhardt	W. M. Hill	D. C. Sowers
O. J. Bond	A. Joachims	R. P. Strough
J. E. Burbank	R. R. Lukens	O. W. Swainson
G. D. Cowie	H. E. McComb	S. G. Townshend, jr
R. B. Elder	J. B. Miller	P. M. Trueblood
O. W. Ferguson	F. Neumann	E. S. Walker
O. H. Gaarden	W. E. Parker	L. W. Weed
J. W. Green	J. H. Peters	C. F. Woodyard
A. L. Giacomini	C. G. Quillian	

SEA OBSERVATIONS.

The results obtained on board ship are given in Table II. The general arrangement is indicated by the headings. In general, each value is the result of observations on 8 or 16 equidistant headings, swinging ship both with port and starboard helms. Where the number of headings is less than 8 the result usually depends upon observations on the ship's course and one or two points to either side. In the column headed "Sea," sm. means smooth; sw., swell;

lt., light; mod., moderate; hvy., heavy. The commanding officers of the different ships were as follows:

Bache	W. C. Hodgkins	*McArthur*	C. G. Quillian
Explorer	H. W. Rhodes, R. S. Patton	*Patterson*	W. E. Parker, H. W. Rhodes, F. Westdahl
Gedney	R. B. Derickson		
Hydrographer	H. C. Graves		

Intensity results are given in C.G.S. units. The horizontal intensity has been computed from the observed dip and total intensity.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912.*

ALABAMA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Mobile, old	30 41.8	88 08.8	12, Au 9	4 40.2 E	61 42.9	26317	20	31.12	O.H.G.
Brewton	31 06.6	87 05.2	11, Jy 6, 7	4 04.4 E	62 19.9	25967	10	36.12	F.N.
Monroeville	31 31.6	87 21.3	11, Jy 10, 11	4 15.1 E	62 47.3	25607	10	36.12	F.N.
Camden	31 59.6	87 19.2	11, Jy 13, 14	3 42.4 E	62 58.7	25586	10	36.12	F.N.
Hayneville	32 10.8	86 35.0	12, Jy 9, 10	3 11.6 E	63 29.3	25235	20	31.12	O.H.G.
Tuskegee	32 25.4	85 42.3	11, Jy 27	2 45.4 E	63 34.9	25105	10	36.12	F.N.
Selma, old	32 26.8	87 03.2	11, Jy 19, 20	2 57.8 E	63 36.2	25496	10	36.12	F.N.
Prattville	32 28.1	86 28.2	12, Jy 12, 13	3 29.6 E	63 45.8	25065	20	31.12	O.H.G.
Wetumpka	32 32.7	86 13.1	11, Jy 24, 25	2 50.8 E	63 20.2	24906	10	36.12	F.N.
Eutaw	32 50.7	87 53.6	12, Jy 16	4 56.7 E	64 08.9	24836	20	31.12	O.H.G.
Lafayette	32 54.0	85 24.4	11, Jy 29, 31	2 18.0 E	64 10.7	24891	10	36.12	F.N.
Ashland	33 16.4	85 50.6	11, Au 4	2 55.6 E	64 45.6	24449	10	36.12	F.N.
Pell City	33 35.0	86 17.7	11, Au 8	2 10.2 E	64 50.7	24554	10	36.12	F.N.
Anniston	33 38.5	85 49.5	11, Au 5, 7	2 41.0 E	64 55.4	24271	10	36.12	F.N.
Hartsells	34 26.8	86 55.1	11, Se 23	4 07.7 E	65 58.8	23411	10	36.12	F.N.
Moulton	34 29.9	87 15.8	11, Se 25	2 45.5 E	65 45.1	23775	10	36.12	F.N.
Courtland	34 40.4	87 20.4	11, Se 21	3 21.6 E	66 11.9	23645	10	36.12	F.N.
Tuscumbia	34 42.8	87 41.8	11, Se 16	3 48.4 E	66 06.3	23433	10	36.12	F.N.
Athens	34 49.1	86 59.5	11, Se 27, 28	5 09.4 E	66 28.3	23209	10	36.12	F.N.
Elkmont	34 55.0	86 58.4	11, Se 29	4 15.4 E	65 59.6	23649	10	36.12	F.N.

ALASKA.

Dutch Harbor	53 53.4	166 32.1	11, Jy 31	17 26.6 E	66 41.7	20969	18	34.56	R.R.L.
Do.	53 53.4	166 32.1	11, Au 23, 24	17 29.6 E	66 41.5	20904	8	32.2	A.J.
Do.	53 53.4	166 32.1	11, Se 28	17 30.5 E	66 45.8	21048	8	32.12	A.J.
Do.	53 53.4	166 32.1	12, Jy 10	17 27.0 E	66 35.6	20967	18	34.56	P.M.T.
Nakat Harbor	54 48.7	130 42	12, Oc 8	30 36.2 E	.....	.....	*737*	.....	C.G.Q.
Reef	54 51.4	162 31.3	11, Jy 21	18 55.9 E	.....	.....	*C32*	.....	W.E.P.
Patton	54 54.3	162 08.5	11, Jy 20	17 51.0 E	.....	.....	*742*	.....	W.E.P.
Luck, Tlevak Narrows	55 00.5	132 49.1	12, Je 29	29 10.3 E	.....	.....	*15*	.....	E.S.W.
Cold	55 01.9	162 24.7	11, Se 20, 23	29 30.3 E	67 47.7	18838	8	32.2	A.J.
King	55 02.4	162 20.7	11, Jy 21	19 42.7 E	.....	.....	*742*	.....	S.H.S.
Safety Rock, Moira Sound	55 03.5	132 05.2	12, Oc 16	29 08 E	.....	.....	*C32*	.....	R.R.L.
Entrance	55 05.8	161 49.2	11, Au 16	20 07.4 E	.....	.....	*742*	.....	S.H.S.
Anchor	55 06.3	161 46.8	11, Jy 15	19 46.7 E	.....	.....	8	.....	W.E.P.
Pop	55 07.1	161 36.5	11, Jy 8	20 42.3 E	.....	.....	*742*	.....	S.H.S.
Pier	55 08.3	161 45.8	11, Au 16	18 59.0 E	.....	.....	*742*	.....	S.H.S.
Bear	55 09.8	161 58.1	11, Au 14	18 18.7 E	.....	.....	*742*	.....	S.H.S.
Point	55 09.9	161 54.0	11, Au 14	21 08.3 E	.....	.....	*742*	.....	S.H.S.
Flat	55 12.0	162 00.6	11, Au 14	18 04.8 E	.....	.....	*742*	.....	S.H.S.
Knob	55 12.6	161 55.3	11, Jy 7	28 20.3 E	.....	.....	*742*	.....	S.H.S.
Turn Point, Tlevak Narrows	55 15.7	133 07.3	12, Se 30	29 00.0 E	.....	.....	*15*	.....	A.J.
Ketchikan	55 20.2	131 39.5	11, No 6	29 07.0 E	.....	.....	*737*	.....	D.X.S.
Do.	55 20.2	131 39.5	12, Je 3, 4	29 12.5 E	.....	.....	*737*	.....	S.A.G.
Sitka obs'y	57 03.0	135 20.1	12, Je, Jy	30 2[illegible] 8 E	74 28.7	15612	37	2 EI	F.L.A.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

ALASKA—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Security Cove, Tell	58 40.6	162 01.3	12, Se 10–12	19 13.2 E	70 49.8	17934	18	34.56	P.M.T.
Goodnews Bay	59 03.2	161 47.8	11, Au 21	19 03.3 E	71 12.2	17615	18	34.56	R.R.L.
Port Graham	59 20.9	151 50.1	11, Au, Oc	23 37.7 E	.....	.....	737	.....	H.B.
Do.	59 20.9	151 50.1	12, Je 25	23 24.2 E	.....	.....	737	.....	H.B.
Dangerous	59 25.3	151 53.5	11, Se 11	23 07.5 E	.....	.....	737	.....	P.M.T.
Seldovia Harbor	59 26.5	151 44.6	11, Se 12	24 58.2 E	.....	.....	737	.....	H.B.
Seldovia	59 28.0	151 42.6	11, Se 2	24 05.9 E	.....	.....	737	.....	C.G.Q.
Anchor Point	59 48.6	151 50.1	11, Au 21	25 14.5 E	.....	.....	737	.....	H.B.
Chinitna Bay	59 50.0	153 04	11, Au 18, 28	26 00.8 E	.....	.....	737	.....	H.B.
Glacier	59 52.9	149 43.3	12, Se 18	26 04 E	.....	.....	737	.....	A.M.S.
Ninilchik	60 00.4	151 43.3	11, Au 31	25 35.3 E	.....	.....	737	.....	P.M.T.
Seward	60 06	149 26.2	12, Se 23–25	26 37.1 E	.....	.....	737	.....	A.M.S.
Tuxedni Harbor	60 08.8	152 38.2	11, Au, Se	25 45.6 E	.....	.....	737	.....	H.B.
Bill, Cook Inlet	60 23.5	152 14.5	11, Jy 18	24 10.9 E	.....	.....	737	.....	C.G.Q.
Nibsy, Orca Inlet	60 35.5	145 42.0	12, Au 29	29 02.8 E	.....	.....	733	.....	O.W.S.
Tree, Port Wells	60 45.1	147 49.8	12, Au 23	28 17.5 E	.....	.....	733	.....	O.W.S.
141st Meridian Boundary									
Near Mon't 50	67 25.0	141 00.0	12, My 30, 31	37 04 E	.....	.....	744	.....	W.B.G.
Gun	67 35.5	140 53.4	11, Je 13	38 42 E	.....	.....	741	.....	A.C.B.
Comb	67 50.3	141 11.9	11, Je 26	38 55 E	.....	.....	741	.....	A.C.B.
Pasture	68 07.5	141 13.7	11, Jy 1	38 20 E	.....	.....	741	.....	A.C.B.
Yankee	68 19.0	141 13.0	11, Jy 8	37 52 E	.....	.....	741	.....	A.C.B.
Wee	68 25.0	141 14.1	11, Jy 15	38 09 E	.....	.....	741	.....	A.C.B.
Coral	68 30.6	141 13.6	11, Jy 18	38 09 E	.....	.....	741	.....	A.C.B.
Shark	68 38.6	140 55.1	11, Jy 28	39 11 E	.....	.....	741	.....	A.C.B.
Siwash	68 48.5	141 18.3	11, Jy 30	39 01 E	.....	.....	741	.....	A.C.B.
Tub	68 58.5	140 57.5	12, Je 17, 18	39 51 E	.....	.....	744	.....	W.B.G.
Near Empire	69 07.9	140 52.6	12, Je 26, 31	40 42 E	.....	.....	744	.....	W.B.G.
Aurora	69 15.0	140 50.0	12, Jy 11	40 37 E	.....	.....	744	.....	W.B.G.
Mosquito	69 27.4	141 13.1	12, Jy 22, 23	40 38 E	.....	.....	744	.....	W.B.G.
Near Mon't 1	69 38.8	141 00.0	12, Au 2	40 22 E	.....	.....	744	.....	W.B.G.

ARIZONA.

Tucson Obs'y	32 14.8	110 50.1	12, Je, Jy	13 33.5 E	59 20.2	27328	30	3 EI	L.W.W.
Do.	32 14.8	110 50.1	12, Au 19, 26	13 33.0 E	59 18.6	27315	20	31.12	O.H.G.
Do.	32 14.8	110 50.1	12, Oc 8–21	13 34.7 E	59 19.8	27300	20	31.12	O.H.G.

ARKANSAS.

El Dorado	33 13.0	92 38.7	12, No 6	7 01.2 E	63 35.5	25229	36	36.12	D.C.S.
Hamburg	33 13.8	91 46.0	12, Oc 28	6 29.9 E	63 42.7	25286	36	36.12	D.C.S.
Magnolia	33 16.8	93 13.9	12, No 8	7 27.4 E	63 33.9	25202	36	36.12	D.C.S.
Lake Village	33 19.3	91 17.6	12, Oc 25, 26	6 09.6 E	64 00.0	24801	36	36.12	D.C.S.
Lewisville	33 21.8	93 34.0	12, No 11	7 35.3 E	63 36.1	25208	36	36.12	D.C.S.
Hampton	33 32.0	92 27.6	12, No 4	7 06.0 E	64 03.8	24869	36	36.12	D.C.S.
Arkansas City	33 36.2	91 12.6	12, Oc 23, 24	6 16.6 E	64 07.3	24905	36	36.12	D.C.S.
Ashdown	33 40.4	94 08.4	12, No 14	7 48.6 E	63 51.7	25062	36	36.12	D.C.S.
Washington	33 47.4	93 40.4	12, No 18	7 31.8 E	64 00.8	24994	36	36.12	D.C.S.
Prescott	33 48.6	93 22.7	12, No 19, 20	7 25.0 E	64 06.0	24921	36	36.12	D.C.S.
Fordyce	33 49.3	92 24.2	12, Oc 30, 31	7 09.1 E	64 12.2	24871	36	36.12	D.C.S.
Nashville	33 57.3	93 50.4	12, No 16	7 38.2 E	64 08.9	24932	36	36.12	D.C.S.
Varner	34 02	91 37.2	12, Oc 22, 23	6 42.4 E	64 40.6	24597	36	36.12	D.C.S.
Arkadelphia	34 08.0	93 03.7	12, No 21	7 17.5 E	64 29.1	24714	36	36.12	D.C.S.
Malvern, old	34 21.6	92 48.8	12, No 22	6 22.2 E	64 11.2	25194	36	36.12	D.C.S.
Stuttgart	34 29.4	91 33.4	12, Oc 21	6 35.1 E	65 13.9	24219	36	36.12	D.C.S.
Hot Springs	34 31.1	93 04.2	12, No 25	7 33.0 E	64 49.7	24491	36	36.12	D.C.S.
Little Rock, old	34 47.0	92 17.9	12, Je 6	6 54.3 E	65 11.3	24198	11	15.56	F.N.
Brinkley	34 54.5	91 12.0	12, Oc 16, 19	6 33.4 E	65 45.1	23923	36	36.12	D.C.S.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

CALIFORNIA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
San Diego, old	32 42.7	117 11.7	12, My 7	15 14.3 E	58 09.1	27535	8	32.12	A.J.
Goat Island, old	37 48.8	122 21.7	11, De 16, 18	18 03.7 E	62 06.2	25174	8	32.12	A.J.
Do.	37 48.8	122 21.7	12, My 15	18 02.7 E	62 03.6	25234	8	32.12	A.J.

DELAWARE.

Seaford, 1910 sta.	38 39.0	75 34.8	12, Au 8	6 23.4 W	70 15.0	19796	17	76.12	J.R.B.
Smyrna	39 17.6	75 35.4	12, Au 9, 10	7 17.0 W	70 55.6	19282	17	76.12	J.R.B.
Middletown	39 26.2	75 42.0	12, Au 12, 13	7 30.3 W	71 34.1	18782	17	76.12	J.R.B.
Delaware City	39 33.8	75 35.5	12, Au 14	8 05.3 W	71 07.4	19148	17	76.12	J.R.B.
Newcastle	39 39.4	75 35.2	12, Au 16	8 02.5 W	71 17.4	19180	17	76.12	J.R.B.

FLORIDA.

Miami, old	25 47.3	80 11.7	11, Au 20	1 30.0 E	57 16.9	28152	29	76.12	G.H.
Key West, new	24 33.0	81 45.3	11, Au 17, 18	2 27.8 E	55 41.4	28778	29	76.12	G.H.
Key West, old	24 33.5	81 47.7	11, Jy 14	2 27.1 E	55 34.1	28864	C	35.12	G.D.C.
Jupiter	26 56.3	80 02.9	11, Au 22	1 32.4 E	58 34.2	27449	29	76.12	G.H.

GEORGIA.

Quitman	30 46.3	83 33.5	11, Au 8	2 24.9 E	62 19.0	25780	19	23.34	W.M.H.
Bainbridge	30 54.7	84 34.9	11, Jy 31, 32	2 13.1 E	62 17.3	25875	19	23.42	W.M.H.
Colquitt	31 10	84 45.1	11, Jy 29	2 16.2 E.	62 50.9	25381	19	23.42	W.M.H.
Nashville	31 10	83 16.7	11, Au 10, 11	2 51.9 E	63 15.5	25309	19	23.34	W.M.H.
Blakely	31 22.8	84 58.4	11, Jy 26, 27	2 37.0 E	62 53.5	25656	19	23.42	W.M.H.
Tifton	31 27.8	83 32.2	11, Au 14	2 44.6 E	63 42.2	24936	19	23.34	W.M.H.
Sylvester	31 32.3	83 52.0	11, Au 17	1 49.5 E	63 09.4	25296	19	23.34	W.M.H.
Morgan	31 32.5	84 36.9	11, Jy 22, 24	2 34.2 E	63 10.7	25379	19	23.42	W.M.H.
Ashburn	31 42.3	83 40.4	11, Au 18, 19	1 42.4 E	63 28.6	25010	19	23.34	W.M.H.
Fitzgerald	31 42.7	83 16.6	11, Au 25, 26	1 45.2 E	63 35.7	24819	19	23.34	W.M.H.
Leesburg	31 43.8	84 11.9	11, Jy 18–21	2 04.0 E	63 37.7	25076	19	23.42	W.M.H.
Dawson	31 46.2	84 26.4	12, Jy 4, 5	2 41.2 E	63 37.5	24965	20	31.12	O.H.G.
Hazlehurst	31 52.5	82 39.1	11, Se 7–9	1 22.0 E	63 35.9	24888	19	23.34	W.M.H.
Georgetown	31 52.8	85 05.7	12, Jy 6	2 51.4 E	63 37.9	24779	20	31.12	O.H.G.
Abbeville	31 58	83 22.1	11, Au 30, 31	1 26.4 E	63 44.9	24745	19	23.34	W.M.H.
Cordele	31 58.6	83 46.1	11, Au 23	1 57.5 E	63 48.7	24827	19	23.34	W.M.H.
Lumpkin	32 03.0	84 48.3	11, Jy 4, 5	2 29.9 E	63 38.7	24867	19	23.42	W.M.H.
Preston	32 04.3	84 31.9	11, Jy 9, 10	2 03.0 E	63 55.7	24697	19	23.42	W.M.H.
Americus	32 04.8	84 12.8	11, Jy 12, 14	2 13.0 E	64 04.5	24497	19	23.42	W.M.H.
McRae	32 05.1	82 56.3	11, Se 3–5	1 27.8 E	63 41.2	24864	19	23.34	W.M.H.
Vienna	32 05.7	83 47.7	12, Je 28	1 58.6 E	63 54.2	24662	20	31.12	O.H.G.
Perry	32 27.5	83 43.7	12, Je 17	1 49.4 E	64 01.4	24722	20	31.12	O.H.G.
Butler	32 33.6	84 13.4	12, Je 20	1 12.3 E	63 52.6	24978	20	31.12	O.H.G.
Talbotton	32 41.0	84 31.5	12, Je 24	0 30.8 E	64 47.5	24483	20	31.12	O.H.G.
Knoxville	32 43.5	83 59.3	12, Je 14	2 17.2 E	64 35.2	24240	20	31.12	O.H.G.
Millen	32 48.1	81 59.7	11, Se 11, 12	0 38.4 E	64 30.5	24456	19	23.34	W.M.H.
Irwinton	32 48.8	83 10.9	11, Se 19, 20	1 40.4 E	64 38.9	24352	19	23.34	W.M.H.
Louisville, old	33 00.8	82 25.8	11, Se 14–16	1 36.6 E	65 02.4	24016	19	23.34	W.M.H.
Gray	33 01.0	83 32.3	12, May 27	1 48.0 E	64 37.7	24308	20	31.12	O.H.G.
Forsyth	33 02.3	83 55.6	12, May 30	1 44.4 E	64 35.7	24342	20	31.12	O.H.G.
La Grange, new	33 03.4	85 03.5	11, Oc 14	2 12.4 E	64 29.6	24585	19	23.34	W.M.H.
La Grange, old	33 04.0	85 02.1	11, Oc 18, 19	2 03.8 E	64 24.6	24551	19	23.34	W.M.H.
Milledgeville, old	33 04.5	83 15.0	11, Se 22	2 35.6 E	65 10.0	23874	19	23.34	W.M.H.
Zebulon	33 05.9	84 20.8	12, Je 12	1 42.4 E	64 39.2	24400	20	31.12	O.H.G.
Griffin	33 14.8	84 14.8	12, Je 3	1 33.2 E	64 54.0	24223	20	31.12	O.H.G.
Sparta	33 17.7	82 56.9	11, Se 26, 27	1 31.9 E	65 14.2	23928	19	23.34	W.M.H.
Monticello	33 18.7	83 41.1	12, My 24	1 33.2 E	65 02.1	24002	20	31.12	O.H.G.

TABLE I.— *Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

GEORGIA—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Fayetteville	33 27.0	84 27.3	12, Je 10	1 56.4 E	64 55.5	24287	20	31.12	O.H.G.
Augusta, old	33 27.9	81 57.3	12, My 10	0 26.8 E	65 25.4	23715	20	31.23	O.H.G.
Thomson	33 29.2	82 29.4	11, Se 29, 30	1 21.0 E	65 35.0	23616	19	23.34	W.M.H.
Augusta, new	33 29.6	81 59.9	12, My 13	0 27.9 E	65 38.8	23612	20	31.23	O.H.G.
Jonesboro	33 31.9	84 20.8	12, Je 5	1 52.1 E	65 14.9	24023	20	31.12	O.H.G.
Appling	33 32.9	82 19.6	12, My 16	1 10.6 E	65 52.9	23240	20	31.IV	O.H.G.
Crawfordville	33 34	82 52.4	11, Oc 4	1 06.8 E	65 07.1	23972	19	23.34	W.M.H.
Greensboro	33 35.5	83 10.0	11, Oc 6	1 26.8 E	65 27.8	23841	19	23.34	W.M.H.
Covington	33 36.7	83 58.6	11, Oc 11, 12	1 37.6 E	65 20.3	24032	19	23.34	W.M.H.
Monroe	33 48.5	83 41.3	11, Oc 21	1 27.0 E	65 32.3	23778	19	23.34	W.M.H.
Watkinsville	33 52.0	83 24.0	12, My 21	1 17.0 E	65 38.1	23669	20	31.12	O.H.G.
Lexington	33 53.2	83 07.2	12, My 18	0 50.0 E	65 35.6	23663	20	31.12	O.H.G.
Danielsville	34 07.8	83 12.2	11, Oc 24	0 57.2 E	65 48.6	23612	19	23.34	W.M.H.
Carnesville	34 24	83 13.7	11, Oc 26	1 05.8 E	66 00.0	23494	19	23.34	W.M.H.
Dawsonville	34 25.8	84 07.1	11, No 17, 18	1 44.6 E	65 57.7	23724	19	23.34	W.M.H.
Jasper, old	34 28.3	84 26.5	11, No 20	. ....	66 09.4	.....	..	23.34	W.M.H.
Dahlonega	34 32.9	83 57.6	11, No. 13, 14	1 12.4 E	66 15.5	23355	19	23.34	W.M.H.
Cleveland	34 36.2	83 44.1	11, No 9, 10	1 11.6 E	66 17.5	23328	19	23.34	W.M.H.
Toccoa	34 36.9	83 20.6	11, Oc–No	0 54.8 E	66 08.2	23446	19	23.34	W.M.H.

HAWAII.

Honolulu Obs'y	21 19.2	158 03.8	12, Je, Jy	9 34.9 E	39 38.6	29120	22	22EI	J.W.G.

ILLINOIS.

Cairo, old	37 00.8	89 11.6	11, Au 31, 32	4 40.0 E	68 01.0	22070	11	31.12	J.R.B.
Jacksonville	39 43.0	90 14	11, Au 28, 29	5 32.3 E	70 30.8	20348	11	31.12	J.R.B.
Springfield, old	39 49.7	89 39.4	11, Au 24, 25	4 17.9 E	70 34.4	20205	11	31.12	J.R.B.
Virginia	39 57.6	90 13.9	11, Au 26	5 41.7 E	70 40.9	20090	11	31.12	J.R.B.
Rushville	40 07.7	90 33.8	11, Se 16	5 07.8 E	70 37.4	20268	36	30.12	D.C.S.
Pekin	40 35.3	89 37.9	11, Au 22	4 38.7 E	71 15.0	19587	11	31.12	J.R.B.
Hennepin	41 14.6	89 21.0	11, Au 19	4 34.4 E	71 59.6	19029	11	31.12	J.R.B.
Morris	41 21.3	88 26.2	11, Au 17, 18	3 07.2 E	72 14.3	18719	11	31.IV	J.R.B.
Wheaton	41 52.7	88 06.1	11, Au 11, 14	2 35.2 E	72 36.8	18382	11	31.IV	J.R.B.
Belvidere	42 14.6	88 52.1	11, Au 15	3 45.4 E	72 49.4	18282	11	31.IV	J.R.B.

INDIANA.

Cannelton	37 54.6	86 42.9	11, Jy 19	3 25.9 E	69 20.2	21084	11	31.12	J.R.B.
Salem	38 35.6	86 06.3	11, Jy 17	2 09.6 E	70 05.9	20578	11	31.12	J.R.B.
Scottsburg	38 40.8	85 47.2	11, Jy 13, 14	1 14.8 E	70 15.8	20250	11	31.12	J.R.B.
Vevay	38 45.8	85 03.5	11, Jy 10	1 26.6 E	70 03.5	20486	11	31.12	J.R.B.
Rising Sun	38 57.0	84 51.3	11, Jy 8	1 09.4 E	70 15.4	20286	11	31.12	J.R.B.
Versailles	39 04.1	85 14.8	11, Jy 11, 12	1 44.0 E	70 11.3	20481	11	31.12	J.R.B.
Nashville	39 12.0	86 14.5	11, Jy 21	1 32.4 E	70 20.3	20260	11	31.12	J.R.B.
Muncie	40 12.2	85 22.7	11, Jy 26, 27	1 39.2 E	71 26.1	19486	11	31.12	J.R.B.
Tipton	40 16.2	86 01.8	11, Jy 25	1 09.9 E	71 22.6	19438	11	31.12	J.R.B.
Marion	40 35.7	85 39.7	11, Jy 28	1 18.2 E	71 45.4	19008	11	31.12	J.R.B.
Monticello	40 44.3	86 43.8	11, Au 1	1 29.2 E	71 46.1	19030	11	31.12	J.R.B.
Logansport, old	40 45.3	86 19.0	11, Au 8, 9	1 31.7 E	71 46.8	19035	11	31.12	J.R.B.
Knox	41 17.1	86 37.6	11, Au 3	1 37.2 E	72 04.6	18805	11	31.12	J.R.B.
La Grange	41 37.8	85 25.6	11, Au 4, 5	0 31.6 E	72 34.9	18383	11	31.12	J.R.B.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

IOWA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Fort Madison	40 38.2	91 18.6	11, Se 12	6 45.0 E	71 08.6	19793	36	30.12	D.C.S.
Montezuma	41 34.8	92 32.1	11, Au 30	7 47.4 E	71 41.4	19353	36	30.12	D.C.S.
Des Moines, old	41 35.6	93 33.7	12, Au 10	7 59.8 E	71 35.4	19242	29	78.12	H.E.M.
Adel	41 36.6	94 02.1	12, Au 12	7 39.8 E	71 26.2	19389	29	78.12	H.E.M.
Toledo	41 59.6	92 36.7	12, Au 15	7 39.5 E	71 29.0	19477	29	78.12	H.E.M.
Toledo, s. m.	41 59.8	92 36.5	12, Au 15	7 37.4 E	.. ....	.....	..	....	H. E. M.
Storm Lake	42 38.8	95 11.4	11, Au 28	9 07.4 E	73 08.7	17895	36	30.12	D.C.S.
Clarion	42 43.3	93 45.4	12, Au 18	8 25.8 E	72 44.9	18267	29	78.12	H.E.M.
Humboldt	42 43.7	94 14.0	12, Au 20	8 31.0 E	72 54.2	18188	29	78.12	H.E.M.
Orange City	42 59.9	96 00.3	12, Se 4	9 13.7 E	72 09.9	18821	29	78.12	H.E.M.
Primghar	43 05.9	95 36.9	11, Au 26	9 18.8 E	72 24.9	18566	36	30.12	D.C.S.
Forest City	43 15.2	93 36.4	12, Au 24	9 57.2 E	73 07.6	17926	29	78.12	H.E.M.
Sibley, old	43 23.8	95 44.0	12, Au 29	9 32.3 E	72 58.0	18110	29	78.12	H.E.M.
Estherville	43 24.2	94 48.3	12, Au 27	9 19.2 E	72 34.3	18395	29	78.12	H.E.M.
Rock Rapids	43 25.7	96 08.2	12, Se 1	10 25.4 E	73 06.2	18036	29	78.12	H.E.M.

KANSAS.

Winfield, old	37 14.7	96 59.0	11, Jy 7, 8	9 38.8 E	67 16.1	22850	20	78.12	H.E.M.
Leavenworth	39 20.8	94 55.5	12, Jy 19	8 33.6 E	69 32.3	21221	29	78.12	H.E.M.

KENTUCKY.

Albany	36 41.8	85 08.8	12, Au 17	1 13.0 E	68 06.9	21920	36	36.12	D.C.S.
Tompkinsville	36 42	85 41.7	12, Au 20	2 27.2 E	68 20.4	22026	36	36.12	D.C.S.
Williamsburg	36 44.8	84 08.9	12, Se 4, 6	0 15.5 E	68 27.7	21810	36	36.12	D.C.S.
Burkesville	36 47.4	85 22.6	12, Au 19	0 23.6 E	68 29.3	22116	36	36.12	D.C.S.
Edmonton	36 59.0	85 37.0	11, Se 23	2 38.1 E	69 05.1	21553	36	30.12	D.C.S.
Glasgow	37 00.4	85 55.2	11, Se 21, 22	3 36.5 E	69 15.2	21227	36	30.12	D.C.S.
Columbia	37 06.9	85 17.6	11, Se 25	1 45.2 E	69 12.7	21219	36	30.12	D.C.S.
Morgantown	37 12.6	86 43.7	12, Oc 9	3 08.6 E	68 33.5	21674	36	36.12	D.C.S.
Campbellsville	37 21.6	85 21.0	11, Se 26, 27	1 23.4 E	69 22.0	20934	36	30.12	D.C.S.
Mount Vernon	37 22.1	84 21.0	12, Se 7	0 34.2 E	70 03.7	20547	36	36.12	D.C.S.
Calhoun	37 32.7	87 16.2	11, Se 20	3 57.4 E	68 36.4	21718	36	30.12	D.C.S.
Hodgenville	37 34.3	85 42.8	12, Oc 7, 8	2 18.3 E	69 07.8	21058	36	36.12	D.C.S.
Danville	37 39.2	84 47.2	11, Se 28	1 14.4 E	69 26.6	20902	36	30.12	D.C.S.
Henderson	37 49.8	87 36.4	11, Se 2	3 59.3 E	69 15.7	21276	11	31.12	J.R.B.
Nicholasville	37 53.9	84 34.4	12, Se 9	0 23.6 E	69 36.4	20673	36	36.12	D.C.S.
Winchester, old	38 00.0	84 09.3	12, Oc 5	0 12.0 W	69 34.8	20465	36	36.12	D.C.S.
Winchester, new	38 00.6	84 11.1	12, Oc 4	0 06.2 W	69 30.6	20494	36	36.12	D.C.S.
Paris	38 12.7	84 16.0	11, Se 6	1 07.0 E	69 39.2	20734	11	31.12	J.R.B.
Carlisle	38 19.0	84 03.7	11, Se 7	0 55.4 E	69 45.1	20668	11	31.12	J.R.B.
New Castle	38 26	85 09.8	12, Se 11, 12	1 21.1 E	70 10.7	20210	36	36.12	D.C.S.
Mount Olivet	38 31.6	84 02.2	12, Se 27	0 44.2 E	70 01.7	20512	36	36.12	D.C.S.
Greenup	38 34.7	82 49.9	12, Oc 2	2 18.0 W	70 57.9	19622	36	36.12	D.C.S.
Bedford	38 36.2	85 18.3	12, Se 13	0 59.2 E	70 06.8	20270	36	36.12	D.C.S.
Vanceburg	38 37.1	83 19.5	12, Oc 1	0 43.9 W	70 29.6	20076	36	36.12	D.C.S.
Maysville	38 39.1	83 42.6	12, Se 30	2 32.0 W	70 14.6	20250	36	36.12	D.C.S.
Falmouth, old	38 40	84 21.8	12, Se 23	1 05.0 E	69 57.6	20470	36	36.12	D.C.S.
Carrollton	38 40.4	85 10.9	12, Se 14	1 11.3 E	69 57.2	20410	36	36.12	D.C.S.
Warsaw	38 46.7	84 53.4	12, Se 16	1 19.2 E	70 11.0	20289	36	36.12	D.C.S.
Independence	38 56.0	84 33.0	12, Se 18	0 48.0 E	70 24.5	20065	36	36.12	D.C.S.
Alexandria	38 58.6	84 22.8	12, Se 24	0 43.0 E	70 31.1	20078	36	36.12	D.C.S.
Burlington	39 01.2	84 43.3	12, Se 20	0 54.8 E	70 19.8	20164	36	36.12	D.C.S.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

MARYLAND.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Cheltenham Observatory	38 44.0	76 50.5	11, Se 20–27	5 44.7 W	70 40.2	19729	20	78.12	G.H.
Do.			11, Se, Oc	5 47.1 W	70 39.0	19733	29	76.12	G.H.
Do.			11, Oc 24–30	5 46.9 W	70 39.0	19753	11	31.12	S.G.T.
Do.			11, Oc 25	. .....	70 39.6	.....	..	31.34	S.G.T.
Do.			11, Oc 19–24	5 46.9 W	70 40.1	19730	36	30.12	S.G.T.
Do.			12, Ja 17–22	5 47.2 W	70 38.4	19726	19	23.22	G.H.
Do.			12, Ja 18	. .....	70 37.5	.....	..	23.34	G.H.
Do.			12, My 15	. .....	70 40.3	.....	..	36.12	G.H.
Do.			12, Je, Jy	5 50.0 W	70 39.4	19700	26	26EI	G.H.
Do.			12, Jy 13–15	5 48.3 W	.. ....	19687	17	.....	G.H.
Do.			12, No 18, 19	5 51.1 W	70 40.8	19664	20	31.12	G.H.
Do.			12, No, De	5 52.4 W	70 41.3	19670	29	78.12	G.H.
Do.			12, De 9–12	5 51.3 W	70 40.8	19666	36	36.12	G.H.
Do.			12, De 28, 30	5 51.0 W	.. ....	19674	11	.....	G.H.

MINNESOTA.

Jackson	43 37.9	94 58.1	11, Jy 1	8 55.0 E	73 06.8	18020	36	30.12	D.C.S.
Ivanhoe	44 27.4	96 14.9	11, Jy 5	10 33.8 E	73 49.6	17262	36	30.12	D.C.S.
St. Paul, old	44 58.0	93 06.2	11, Jy 10, 11	8 49.8 E	74 47.7	16468	36	30.12	D.C.S.
Madison	45 01.3	96 12.0	11, Jy 7	10 49.4 E	74 17.2	16894	36	30.12	D.C.S.
Litchfield	45 06.2	94 32.0	11, Jy 8	9 12.4 E	74 36.1	16494	36	30.12	D.C.S.
Buffalo	45 09.9	93 52.6	11, Jy 12	8 59.4 E	74 42.1	16404	36	30.12	D.C.S.
Long Prairie	45 58	94 51.8	11, Jy 19	9 08.2 E	75 26.2	15781	36	30.12	D.C.S.
Fergus Falls	46 17.0	96 05.1	11, Jy 20	10 44.2 E	75 30.9	15755	36	30.12	D.C.S.
Mahnomen	47 19.7	95 58.7	11, Jy 22	10 10.4 E	76 11.8	15009	36	30.12	D.C.S.
Red Lake Falls	47 52.7	96 14.1	11, Jy 26	10 54.4 E	76 34.3	14667	36	30.12	D.C.S.
Hallock	48 46.6	96 55.6	11, Jy 28	11 55.6 E	77 06.0	14194	36	30.12	D.C.S.
Roseau	48 50.8	95 45.6	11, Jy 24, 25	9 29.7 E	77 08.7	14093	36	30.12	D.C.S.

MISSISSIPPI.

Lucedale	30 56.4	88 36.2	12, Au 6	4 56.6 E	61 51.7	26230	20	31.12	O.H.G.
New Augusta	31 11.8	89 02.8	12, Au 2	5 01.2 E	62 10.2	26070	20	31.12	O.H.G.
Hattiesburg	31 18.3	89 17.3	12, Jy 30, 31	5 19.8 E	62 12.7	26024	20	31.12	O.H.G.
Collins	31 38.2	89 31.2	12, Jy 27	5 27.2 E	62 39.3	25874	20	31.12	O.H.G.
Raleigh	32 01.8	89 31.3	12, Jy 25, 26	5 31.3 E	62 56.7	25676	20	31.12	O.H.G.
Paulding	32 02.2	88 55.2	12, Jy 22	5 08.6 E	63 00.6	23692	20	31.12	O.H.G.
Brandon	32 15.1	89 59.9	11, Au 26, 28	5 31.0 E	63 06.6	25524	10	36.12	F.N.
Decatur	32 25.4	89 06.7	11, Au 23, 24	5 07.9 E	63 25.4	25343	10	36.12	F.N.
Philadelphia	32 45.6	89 06.3	11, Au 21	5 34.0 E	63 50.7	25277	10	36.12	F.N.
Lexington	33 05.2	90 05.1	11, Au 29	5 52.8 E	63 46.8	25206	10	36.12	F.N.
Louisville	33 01.8	89 02.4	11, Au 19	5 22.4 E	64 06.9	24986	10	36.12	F.N.
Starkville	33 26.2	88 50.8	11, Au 14, 15	5 00.0 E	64 38.0	24599	10	36.12	F.N.
Columbus	33 28.1	88 27.6	11, Au 11	4 42.4 E	64 41.4	24602	10	36.12	F.N.
Grenada	33 45.4	89 47.6	11, Au 31, 32	5 08.4 E	64 50.5	24536	10	36.12	F.N.
Houston	33 52.6	88 59.4	11, Se 11	5 06.4 E	65 07.1	24187	10	36.12	F.N.
Pittsboro	33 54.8	89 19.1	11, Se 9	5 06.4 E	64 58.4	24512	10	36.12	F.N.
Coffeeville	33 57.2	89 38.2	11, Se 6, 7	5 39.5 E	64 52.9	24550	10	36.12	F.N.
Pontotoc	34 14.3	88 59.2	11, Se 12, 13	4 44.2 E	65 10.7	24293	10	36.12	F.N.
Ripley	34 42.9	88 56.7	11, Se 14	5 07.6 E	65 59.1	23706	10	36.12	F.N.

TABLE I.— *Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

MISSOURI.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
New Madrid	36 35.5	89 32.6	12, No 11	4 30.3 E	67 39.2	22450	11	15.56	F.N.
Doniphan	36 37	90 49.6	12, No 4, 6	5 56.6 E	67 31.0	22532	11	15.56	F.N.
Charleston	36 55.7	89 20.8	12, No 7, 8	4 16.8 E	68 09.5	21960	11	15.56	F.N.
Springfield	37 11	93 14.6	12, Oc 23	7 01.8 E	67 29.6	22713	11	15.56	F.N.
Waynesville	37 49.7	92 10.5	12, Oc 26	6 47.3 E	68 26.0	21990	11	15.56	F.N.
Hillsboro	38 14.0	90 34.0	12, No 1, 2	5 43.1 E	68 59.4	21458	11	15.56	F.N.
St. Louis, old	38 38.4	90 16.0	12, Oc 30	4 58.1 E	69 49.6	20768	11	15.56	F.N.
Independence	39 04.3	94 24.4	12, Jy 24	8 40.5 E	69 20.2	21329	29	78.12	H.E.M.
Liberty	39 13.7	94 23.2	12, Jy 22	8 44.8 E	69 47.0	20851	29	78.12	H.E.M.
Richmond	39 15.9	93 58.3	12, Jy 26, 27	7 34.4 E	69 39.3	20936	29	78.12	H.E.M.
Platte City	39 21.6	94 47.6	12, Jy 29	8 16.6 E	69 38.7	20955	29	78.12	H.E.M.
St. Joseph	39 48.8	94 50.2	12, Jy 17	8 15.0 E	69 58.2	20775	29	78.12	H.E.M.
Savannah	39 57.1	94 49.8	12, Jy 31	8 37.0 E	70 45.4	19880	29	78.12	H.E.M.
Oregon	39 59.8	95 09.8	12, Jy 14	9 31.6 E	70 26.6	20228	29	78.12	H.E.M.
Rockport	40 25.3	95 30.2	12, Jy 10	9 17.8 E	70 22.4	20324	29	78.12	H.E.M.
Grant City	40 30	94 25.7	12, Au 6	8 47.2 E	70 43.3	20212	29	78.12	H.E.M.

NEBRASKA.

Nebraska City, old	40 41.3	95 52.5	12, Jy 8, 9	9 27.1 E	70 24.2	20288	29	78.12	H.E.M.
Lexington	40 45.9	99 44.4	12, Je 19	12 22.6 E	69 49.2	20682	29	78.12	H.E.M.
Seward	40 53.8	97 07.3	12, Je 15	9 46.8 E	70 35.3	20298	29	78.12	H.E.M.
Grand Island	40 55.6	98 20.6	12, Je 17	11 39.0 E	70 28.8	20377	29	78.12	H.E.M.
Loup City	41 16.3	98 57.0	12, Je 26	12 10.8 E	70 15.6	20442	29	78.12	H.E.M.
Fullerton	41 21.6	97 58.9	12, Je 29	10 39.6 E	71 08.5	19650	29	78.12	H.E.M.
Oshkosh	41 25.4	102 21.0	12, Je 22	14 06.9 E	69 57.1	20639	29	78.12	H.E.M.
Blair	41 32.6	96 10.8	11, Jy 1	9 28.6 E	70 59.5	19869	20	78.12	H.E.M.
Taylor	41 46.4	99 21.8	12, Je 27	12 23.9 E	70 49.4	19926	29	78.12	H.E.M.
Madison	41 49.3	97 26.6	12, Jy 2	11 04.5 E	71 13.0	19570	29	78.12	H.E.M.

NEW JERSEY.

Elmer	39 36.1	75 11.2	12, Au 30	8 06.2 W	71 20.2	18843	17	76.12	J.R.B.
Woodstown	39 39.2	75 22.1	12, Au 28	7 18.3 W	71 08.8	19059	17	76.12	J.R.B.
Williamstown	39 40.3	74 59.3	12, Se 2, 3	7 54.3 W	71 23.8	18845	17	76.12	J.R.B.
Swedesboro	39 43.3	75 18.8	12, Au 26, 27	7 51.4 W	71 18.6	18933	17	76.12	J.R.B.
Berlin	39 47.8	74 56.6	12, Se 5	7 54.4 W	71 36.4	18634	17	76.12	J.R.B.
Woodbury	39 50.1	75 08.6	12, Au 23, 24	7 59.3 W	71 29.7	18793	17	76.12	J.R.B.
Moorestown	39 59.3	74 56.9	12, Se 6, 7	8 11.8 W	71 25.3	18827	17	76.12	J.R.B.

NEW YORK.

Albany, old	42 40.5	73 45.0	12, Je 8	11 49.6 W	73 46.0	16759	36	36.12	D.C.S.
Troy	42 43.2	73 41.6	12, Je 6	11 47.6 W	73 49.7	16714	36	36.12	D.C.S.
Canandaigua	42 54.3	77 16.9	12, Je 15	8 14.8 W	74 04.5	16783	36	36.12	D.C.S.
Waterloo	42 54.4	76 51.7	12, Je 14	8 26.4 W	73 54.8	16828	36	36.12	D.C.S.
Utica	43 05.2	75 15.1	12, Je 10	10 51.8 W	73 53.4	16746	36	36.12	D.C.S.
Rome	43 11.6	75 29.6	12, Je 12, 13	9 52.5 W	74 08.1	16442	36	36.12	D.C.S.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

NORTH CAROLINA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Lumberton, old	34 37.2	79 00.7	11, No 23, 24	1 22.2 W	66 10.4	23244	19	23.34	W.M.H.
Lumberton, new	34 37.3	79 00.5	11, No 25, 26	2 00.1 W	66 38.1	22754	19	23.34	W.M.H.
Salisbury, old	35 40.0	80 30.2	12, My 14	0 57.8 W	67 33.7	22029	11	15.56	F.N.
Marshall, new	35 47.2	82 40.2	12, My 21	0 04.4 W	67 34.4	22386	11	15.56	F.N.
Marshall, old	35 47.4	82 40.9	12, My 20	0 27.4 W	66 49.7	23262	11	15.56	F.N.
Newland	36 05.1	81 56.3	12, My 24, 25	0 37.4 W	68 05.0	21879	11	15.56	F.N.
Gatesville, old	36 24.3	76 42.9	12, My 10, 11	4 29.6 W	68 20.7	21560	11	15.56	F.N.
Gatesville, new	36 24.4	76 42.1	12, My 10, 11	4 29.6 W	68 27.2	21471	11	15.56	F.N.

NORTH DAKOTA.

La Moure	46 22.0	98 16.3	11, Au 11, 12	12 32.6 E	74 47.2	16433	36	30.12	D.C.S.
Lisbon	46 26.6	97 40.4	11, Au 10	11 47.7 E	74 59.1	16250	36	30.12	D.C.S.
Casselton	46 54.2	97 12.5	11, Au 8	11 08.8 E	75 04.4	16429	36	30.12	D.C.S.
New Rockford	47 41.0	99 07.6	11, Au 7	13 42.7 E	75 54.1	15307	36	20.12	D.C.S.
Larimore	47 54.7	97 37.8	11, Au 1	12 38.2 E	76 23.3	14831	36	30.12	D.C.S.
Devils Lake	48 07.2	98 50.6	11, Au 2	13 41.3 E	76 27.7	14955	36	30.12	D.C.S.
Pembina, old	48 58.0	97 15.0	11, Jy 29	11 31.7 E	77 19.2	13864	36	30.12	D.C.S.

OHIO.

Marietta, new	39 25.7	81 31.5	11, Jy 5	2 17.5 W	71 05.4	19522	11	31.12	J.R.B.

OKLAHOMA.

Idabel	33 54	94 47.8	12, Se 18, 19	7 51.2 E	63 53.2	25166	11	15.56	F.N.
Marietta	33 56.3	97 07.0	11, Au 2	9 11.6 E	63 37.3	25380	20	78.12	H.E.M.
Durant	33 59.5	96 21.6	12, Se 23	8 59.0 E	63 46.3	25341	11	15.56	F.N.
Hugo	34 00.7	95 30.1	12, Se 19, 20	8 04.9 E	64 02.3	25042	11	15.56	F.N.
Madill	34 05.6	96 46.2	12, Se 24	9 19.8 E	63 46.0	25276	11	15.56	F.N.
Tishomingo	34 13	96 40.5	11, Jy 28, 31	8 16.4 E	64 29.2	24956	20	78.12	H.E.M.
Frederick	34 23.3	98 58.0	12, Oc 7	10 00.4 E	63 25.0	25374	11	15.56	F.N.
Lehigh	34 28.2	96 12.8	11, Jy 26	8 54.6 E	64 20.5	24927	20	78.12	H.E.M.
Sulphur	34 30.0	96 58.0	12, Se 25, 26	9 03.6 E	64 18.0	24964	11	15.56	F.N.
Altus	34 38.2	99 19.3	12, Oc 3, 4	10 05.4 E	63 34.8	25326	11	15.56	F.N.
Snyder	34 39.2	98 54.2	12, Oc 9, 11	10 35.4 E	63 58.4	25008	11	15.56	F.N.
Pauls Valley, old	34 44.8	97 14.3	12, Se 27	9 00.2 E	64 29.1	24897	11	15.56	F.N.
Mangum, new	34 51.8	99 27.3	12, Oc 14, 15	10 51.9 E	63 50.0	25220	11	15.56	F.N.
Wilburton	34 55.6	95 18.1	11, Jy 24	8 11.1 E	64 54.9	24594	20	78.12	H.E.M.
Hobart	35 02.3	99 02.4	12, Oc 12	10 33.8 E	64 40.1	24804	11	15.56	F.N.
Poteau, new	35 03.0	94 37.0	11, Jy 20, 22	8 11.6 E	65 16.9	24360	20	78.12	H.E.M.
Norman	35 13.2	97 26.4	12, Se 30	9 51.2 E	65 06.6	24402	11	15.56	F.N.
Okemah	35 25.0	96 18.2	11, Jy 12, 13	9 00.6 E	65 30.8	24179	20	78.12	H.E.M.
Sallisaw	35 27.4	94 47.6	11, Jy 18	8 12.0 E	65 42.2	24030	20	78.12	H.E.M.
Guthrie, old	35 53.0	97 24.8	11, Jy 10	9 49.6 E	65 46.3	23889	20	78.12	H.E.M.
Westville	35 59.0	94 33.4	11, Jy 15	8 04.8 E	66 13.1	23573	20	78.12	H.E.M.
Taloga	36 01.0	98 53.1	12, Oc 17	10 26.5 E	65 37.6	24031	11	15.56	F.N.
Vinita, old	36 39.4	95 09.2	12, Oc 19	8 48.4 E	66 56.0	23147	11	15.56	F.N.

PENNSYLVANIA.

Kennett Square	39 50.6	75 44.0	12, Au 20	7 51.2 W	71 01.0	19287	17	76.12	J.R.B.
Media	39 56.4	75 23.4	12, Au 21, 22	8 10.2 W	71 17.8	19416	17	76.12	J.R.B.
New Bloomfield	40 25.2	77 12.7	12, Je 20, 21	6 36.2 W	72 06.9	18480	36	36.12	D.C.S.
Mifflintown	40 34.4	77 24.2	12, Je 19	6 11.0 W	72 15.8	18280	36	36.12	D.C.S.
Williamsport, 1901 sta.	41 14	77 02	12, Je 18	7 34.4 W	72 16.3	18320	36	36.12	D.C.S.

TABLE I.— *Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

PHILIPPINE ISLANDS.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Jolo	6 07.3	120 58.2	11, Mh 9	1 36.0 E	2 19.4 S	38972	17	37.2	P.C.W.
Zamboanga	6 52.3	122 03.8	11, Jy 3	1 56.8 E	0 20.6 S	38773	17	37.2	P.C.W.
Dumaguete	9 18.2	123 18.4	10, Oc 8	2 05.6 E	4 45.6 N	38318	17	37.2	P.C.W.
Sabancogon Point	11 49	121 59	10, De 20	1 25.0 E	.. ....	.....	*735*	.....	J.B.M.
Caluya Is.	11 54	121 32	10, De 17	1 22.0 E	.. ....	.....	*735*	.....	J.H.P.
Sibolon Is.	12 06	121 34	10, De 7	1 21.0 E	.. ....	.....	*735*	.....	R.P.S.
Cabalian Pt.	12 06	122 01	10, De 13	1 02.0 E	.. ....	.....	*735*	.....	R.P.S.
Baniaga Rock	12 10	121 02	10, Oc 8	1 20.0 E	.. ....	.....	*735*	.....	A.L.G.
Buruncan Pt.	12 13	121 15	10, Oc 7	1 26.0 E	.. ....	.....	*735*	.....	A.L.G.
Buyallao	12 22	121 27	10, Se 26	1 21.0 E	.. ....	.....	*735*	.....	A.L.G.
Bugsanga River	12 26	120 58	10, Mh 4	1 19.0 E	.. ....	.....	*735*	.....	J.B.M.
Manila	14 34.4	120 58.6	12, Mh 29, 30	0 50.4 E	15 34.4 N	38388	19	23.34	W.M.H.
Antipolo	14 36.0	121 10.0	12, Mh 25–27	0 39.4 E	16 14.4 N	38331	19	23.34	W.M.H.
Vigan	17 33.6	120 24.0	12, Ap 9	0 19.2 E	21 48.5 N	37665	19	23.34	W.M.H.
Tuguegarao	17 36.9	121 43.7	12, Ap 18	0 07.0 E	22 01.5 N	37524	19	23.34	W.M.H.
Aparri	18 21.3	121 37.8	12, Ap 25, 26	0 05.2 E	23 21.4 N	37497	19	23.34	W.M.H.

PORTO RICO.

Ponce, old	18 01.5	66 36.8	11, Jy 20–23	2 03.0 W	49 25.5	29553	29	76.12	G.H.
Aibonito, new	18 07.7	66 15.8	11, Jy 15, 17	2 22.6 W	50 10.7	29155	29	76.12	G.H.
Porto Rico Ob'y	18 08.8	65 26.9	12, Je, Jy	2 38.9 W	50 08.5	28666	31	1 EI	C.F.W.
Caguas, old	18 13	66 03	11, Jy 12	2 22.0 W	50 22.4	29190	29	76.12	G.H.
Mayaguez, old	18 13.8	67 10.4	11, Jy 25	2 08.4 W	49 17.3	29305	29	76.12	G.H.
Obispo Cayo, old	18 20.6	65 37.2	11, Jy 3–5	2 36.8 W	50 07.6	29102	29	76.12	G.H.
San Juan, S. Base, old	18 27.2	66 08.3	11, Jy 7, 8	2 17.6 W	50 43.1	28779	29	76.12	G.H.

SOUTH CAROLINA.

St. Matthews	33 40.2	80 46.4	12, Ap 29 12, My 8	0 18.4 E	65 55.2	23262	20	31.23	O.H.G.
Edgefield	33 46.8	81 55.9	12, Mh 21	0 21.4 E	65 48.4	23521	20	31.23	O.H.G.
Lexington	33 59.7	81 15.2	12, Mh 29	0 00.8 E	65 51.6	23660	20	31.23	O.H.G.
Saluda	33 59.9	81 46.0	12, Mh 26	0 14.4 E	66 02.4	23260	20	31.23	O.H.G.
Florence, old	34 11.2	79 46.0	12, Ap 19	0 58.7 W	66 28.9	22755	20	31.23	O.H.G.
Abbeville	34 11.5	82 21.7	12, Mh 18	0 03.2 W	66 03.2	23916	20	31.23	O.H.G.
Florence, new	34 12.7	79 49.3	12, Ap 23	1 05.5 W	66 21.8	22885	20	31.23	O.H.G.
Bishopville	34 13.8	80 14.4	12, Ap 12	0 27.3 W	66 43.0	22686	20	31.23	O.H.G.
Winnsboro	34 24.1	81 06.7	12, Ap 3	0 18.2 W	66 43.0	22652	20	31.23	O.H.G.
Dillon	34 24.8	79 22.0	12, Ap 25	1 36.6 W	66 27.1	22985	20	31.23	O.H.G.
Laurens	34 29.8	82 01.8	12, Mh 13, 14	0 10.8 W	66 19.1	23131	20	31.23	O.H.G.
Chester	34 42.9	81 13.2	12, Ap 5	2 34.7 W	66 48.8	22863	20	31.23	O.H.G.
Chesterfield	34 44.3	80 05.9	12, Ap 9	1 02.9 W	66 43.9	22672	20	31.23	O.H.G.
Greenville	34 53.0	82 24	12, Mh 2, 6	0 16.2 W	66 36.0	22968	20	31.23	O.H.G.
Gaffney	35 02.6	81 38.8	12, Fe 26–28	0 09.2 W	66 49.5	22739	20	31.23	O.H.G.

SOUTH DAKOTA.

Elk Point	42 41.1	96 40.3	12, Se 6	10 12.0 E	71 55.7	18943	29	78.12	H.E.M.
Yankton, old	42 52.7	97 23.2	12, Se 9	11 29.6 E	73 02.2	17924	29	78.12	H.E.M.
Fairfax	43 01.1	98 53.5	12, Se 11	12 45.4 E	71 44.2	19265	29	78.12	H.E.M.
Canton	43 18.5	96 34.6	11, Au 23, 24	10 58.3 E	72 49.0	18235	36	30.12	D.C.S.
Parker	43 24.6	97 08.2	11, Au 22	10 33.8 E	72 36.4	18421	36	30.12	D.C.S.
Huron, old	44 21.1	98 09.7	11, Au 19	11 34.8 E	73 10.1	17997	36	30.12	D.C.S.
Clark	44 52.8	97 44.0	11, Au 17	11 54.6 E	74 05.6	17215	36	30.12	D.C.S.
Britton	45 47.5	97 45.1	11, Au 15	11 17.6 E	74 36.4	16581	36	30.12	D.C.S.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

TENNESSEE.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Elora	35 00.3	86 22.3	11, Oc 14	1 48.8 E	66 25.0	23143	10	36.12	F.N.
Memphis, old	35 07.8	90 04.3	12, Je 3	5 03.4 E	66 04.2	23694	11	15.56	F.N.
Winchester	35 10.3	86 06.5	11, Oc 16–18	3 00.6 E	66 42.1	23033	10	36.12	F.N.
Fayetteville	35 10.6	86 32.2	11, Oc 11.12	3 46.2 E	66 50.9	22881	10	36.12	F.N.
Lynchburg	35 16.3	86 21.9	11, Oc 19, 20	2 54.5 E	66 28.1	23137	10	36.12	F.N.
Lynnville	35 22.3	86 58.9	11, Oc 5	3 26.2 E	66 40.3	23157	10	36.12	F.N.
Lewisburg	35 27.3	86 46.6	11, Oc 6, 7	2 31.0 E	66 30.2	23251	10	36.12	F.N.
Manchester	35 28.0	86 07.5	11, Oc 25	2 18.2 E	67 06.7	22790	10	36.12	F.N.
Shelbyville	35 29.7	86 28.6	11, Oc 21, 23	2 59.0 E	66 44.9	23037	10	36.12	F.N.
Wartrace	35 31.1	86 22.6	11, Oc 24	3 04.0 E	66 54.0	23171	10	36.12	F.N.
McMinnville	35 40.3	85 46.4	11, Oc 26, 27	2 09.5 E	67 02.0	23075	10	36.12	F.N.
Spencer	35 44.8	85 26.1	11, Oc 28	2 46.0 E	67 07.5	22935	10	36.12	F.N.
Woodbury	35 48.9	86 02.4	11, No 6, 7	2 45.4 E	67 00.2	23049	10	36.12	F.N.
Humboldt	35 49.4	88 54.7	12, Oc 14	4 50.0 E	66 57.3	22867	36	36.12	D.C.S.
Franklin, old	35 54.9	86 53.0	12, My 29	4 05.6 E	.. ....	22646	11	.....	F.N.
Franklin, new	35 54.9	86 53.0	12, My 30	4 05.8 E	67 10.2	.....	11	15.56	F.N.
Smithville	35 56.6	85 47.9	11, No 3	2 43.8 E	67 08.6	22874	10	36.12	F.N.
Nashville, old	36 08.2	86 44.9	11, No 12, 13	3 40.4 E	67 22.1	22514	10	36.12	F.N.
Lebanon	36 13.1	86 17.6	12, Au 26	3 39.1 E	67 12.2	22855	36	36.12	D.C.S.
Carthage	36 14.9	85 56.4	12, Au 30	2 12.8 E	67 39.3	22655	36	36.12	D.C.S.
Hartsville	36 21.7	86 09.4	11, No 15	3 19.8 E	67 32.5	22474	10	36.12	F.N.
Gainesboro	36 22	85 39.4	12, Au 23, 24	2 37.4 E	67 26.6	22727	36	36.12	D.C.S.
Livingston	36 23.3	85 21.2	12, Au 14	1 47.6 E	67 41.2	22357	36	36.12	D.C.S.
Dover	36 29.7	87 52.2	12, Oc 12	2 49.6 E	67 51.3	22238	36	36.12	D.C.S.
Lafayette	36 30.6	86 01.7	11, No 16	4 32.5 E	67 35.5	22610	10	36.12	F.N.
Sneedville	36 32	83 14.6	12, Au 8, 9	0 39.8 W	68 06.3	22032	36	36.12	D.C.S.
Celina	36 33.0	85 30.0	12, Au 22	0 55.8 E	68 10.2	22160	36	36.12	D.C.S.
Byrdstown	36 35.0	85 09.8	12, Au 16	2 09.2 E	68 09.2	21794	36	36.12	D.C.S.

TEXAS.

Sinton	28 01.8	97 28.0	12, Au 5	9 00.7 E	57 08.3	28743	11	15.56	F.N.
Refugio	28 18	97 14.4	12, Au 6	8 58.6 E	57 31.0	28699	11	15.56	F.N.
Beeville, old	28 23.3	97 45.0	12, Jy 29	9 36.8 E	56 41.7	29554	11	15.56	F.N.
Beeville, new	28 24.4	97 45.0	12, Jy 29, 30	9 17.8 E	57 41.4	28404	11	15.56	F.N.
Bay City	28 59.0	95 55.8	12, Au 7, 8	8 07.0 E	58 31.5	28186	11	15.56	F.N.
Floresville	29 07.6	98 10.0	12, Jy 26	9 03.1 E	58 06.9	28348	11	15.56	F.N.
Angleton	29 09	95 25.0	12, Au 9, 10	7 54.1 E	58 44.6	28059	11	15.56	F.N.
Seguin	29 34.4	97 57.1	12, Jy 23, 24	8 52.4 E	58 43.4	28097	11	15.56	F.N.
Richmond	29 35.0	95 45.2	12, Au 12	8 29.9 E	59 15.8	27703	11	15.56	F.N.
Columbus	29 41	96 32.4	12, Au 13, 14	8 58.6 E	59 21.4	27730	11	15.56	F.N.
Lockhart	29 54	97 40.4	12, Jy 22	8 50.4 E	59 11.6	27826	11	15.56	F.N.
Bastrop	30 06	97 18.4	12, Au 19	8 40.0 E	59 34.4	27550	11	15.56	F.N.
Giddings	30 10.5	96 57.0	12, Au 15	8 34.4 E	59 38.6	27496	11	15.56	F.N.
Brenham	30 10.8	96 23.2	12, Au 20, 21	8 57.7 E	59 38.9	27466	11	15.56	F.N.
Austin, old	30 16.0	97 46.3	12, Jy 20	8 32.6 E	59 40.0	27630	11	15.56	F.N.
Kountze	30 22	94 18.3	12, Au 31	7 47.0 E	60 31.6	26923	11	15.56	F.N.
Coldspring	30 35	95 06.7	12, Au 28, 29	8 11.0 E	60 28.6	27008	11	15.56	F.N.
Bryan	30 40.1	96 21.3	12, Au 23	8 53.5 E	60 30.7	26987	11	15.56	F.N.
Huntsville	30 42.2	95 32.8	12, Au 26	8 16.7 E	60 29.9	27006	11	15.56	F.N.
Burnet	30 45.2	98 13.1	12, Jy 18	9 04.2 E	60 12.2	27367	11	15.56	F.N.
Woodville	30 46.6	94 22.2	12, Se 4, 5	7 46.4 E	60 41.6	26908	11	15.56	F.N.
Newton	30 51.1	93 44.6	12, Se 7	7 33.1 E	61 00.8	26716	11	15.56	F.N.
Groveton	31 04.2	95 07.5	11, Au 15	8 00.6 E	60 41.6	26971	20	78.12	H.E.M.
Centerville	31 15.6	95 59.7	11, Au 12	8 31.9 E	60 47.8	26821	20	78.12	H.E.M.
Centerville B	31 15.6	95 59.7	11, Au 12	8 20.9 E	.. ....	.....	20	.....	H.E.M.
Crockett	31 19.5	95 27.8	11, Au 14	8 00.8 E	61 03.3	26799	20	78.12	H.E.M.
Hemphill	31 21.0	93 51.4	12, Se 10	7 27.7 E	61 24.6	26575	11	15.56	F.N.
Goldthwaite	31 27.0	98 34.1	12, Jy 16	9 03.4 E	60 54.8	26937	11	15.56	F.N.
San Augustine	31 31.9	94 06.8	12, Se 12	7 30.2 E	61 30.8	26514	11	15.56	F.N.
Nacogdoches	31 37.0	94 38.6	11, Au 17	8 00.2 E	61 36.1	26568	20	78.12	H.E.M.
Hamilton	31 41.4	98 07.8	12, Jy 10, 11	9 13.0 E	60 54.8	26939	11	15.56	F.N.
Fairfield	31 43.6	96 09.2	11, Au 10	8 26.4 E	61 26.6	26565	20	78.12	H.E.M.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

TEXAS—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Brownwood	31 44.1	98 59.2	12, Jy 13	9 18.6 E	61 14.1	26984	11	15.56	F.N.
Comanche	31 53.7	98 36.4	12, Jy 12	9 20.3 E	61 16.5	26762	11	15.56	F.N.
Carthage	32 10.0	94 20.4	11, Au 19, 20	7 40.8 E	62 18.4	26068	20	78.12	H.E.M.
Glen Rose	32 13.8	97 45.6	12, Jy 6, 8	8 44.4 E	61 49.9	26492	11	15.56	F.N.
Canton	32 33	95 52.6	12, Je 29	8 21.6 E	62 27.3	26092	11	15.56	F.N.
Gilmer	32 43.7	94 56.4	11, Au 22	7 59.2 E	62 41.1	25808	20	78.12	H.E.M.
Dallas	32 45.9	96 45.0	11, Au 7	8 44.6 E	62 25.3	26096	20	78.12	H.E.M.
Quitman	32 46.9	95 26.4	12, Je 26, 27	8 09.6 E	62 41.2	25851	11	15.56	F.N.
Emory	32 51.8	95 44.8	12, Je 24	8 16.3 E	62 40.8	25870	11	15.56	F.N.
Rockwall	32 55.3	96 27.4	12, Jy 3	8 44.8 E	62 43.8	25932	11	15.56	F.N.
Linden	32 59.9	94 22.7	12, Se 14	7 46.4 E	63 11.0	25552	11	15.56	F.N.
Pittsburg	33 00.7	94 57.8	11, Au 24	8 07.8 E	62 56.4	25712	20	78.12	H.E.M.
Greenville	33 07	96 05.6	12, Je 21, 22	8 46.8 E	62 58.5	25759	11	15.56	F.N.
Mount Vernon	33 12	95 12.8	11, Au 26	8 08.5 E	63 01.2	25672	20	78.12	H.E.M.
Denton	33 12.7	97 08.9	11, Au 4, 5	9 18.6 E	62 42.2	25913	20	78.12	H.E.M.
McKinney, old	33 13.1	96 36.3	11, Au 28	9 00.1 E	62 44.5	26069	20	78.12	H.E.M.
Cooper	33 21.9	95 41.1	12, Je 19	8 17.9 E	63 18.6	25566	11	15.56	F.N.
Texarkana, new	33 25.8	94 02.3	12, Je 8	7 42.3 E	63 36.8	25272	11	15.56	F.N.
Boston	33 27.7	94.24 4	12, Je 11	7 48.0 E	63 36.9	25285	11	15.56	F.N.
Bonham	33 35	96 11.4	12, Je 15	8 42.5 E	63 19.0	25525	11	15.56	F.N.
Clarksville	33 36.5	95 03.8	12, Je 13, 14	7 49.0 E	63 34.7	25351	11	15.56	F.N.
VIRGINIA.									
Independence	36 37	81 09.6	12, Au 5	1 07.4 W	68 31.0	21483	36	36.12	D.C.S.
Floyd	36 53.4	80 22.2	11, No 20	2 04.8 W	68 48.2	21241	10	36.12	F.N.
Isle of Wight	36 54.6	76 42.2	12, Jy 29	5 05.0 W	69 05.0	20807	36	36.12	D.C.S.
Lunenburg	36 55.5	78 17.3	11, No 25	3 45.8 W	68 41.6	21129	10	36.12	F.N.
Hampton	37 00.7	76 20.2	12, Je 24, 25	5 02.1 W	69 00.0	20849	36	36.12	D.C.S.
Charlotte C. H.	37 02.1	78 42.0	11, No. 22	3 08.6 W	68 50.3	21147	10	36.12	F.N.
Denbigh	37 07.6	76 32.4	12, Je 27	5 09.6 W	69 07.4	20749	36	36.12	D.C.S.
Yorktown	37 14.1	76 30.5	12, Je 28	5 06.1 W	69 03.6	20895	36	36.12	D.C.S.
Chesterfield	37 20.8	77 30.3	11, No 30	4 22.2 W	69 09.8	20747	10	36.12	F.N.
Gloucester	37 24	76 31.6	12, Jy 24, 26	5 00.5 W	69 39.3	20496	36	36.12	D.C.S.
Lynchburg, old	37 24	79 08	12, Jy 31, 32	3 14.1 W	69 34.6	20652	36	36.12	D.C.S.
Mathews	37 26.0	76 18.4	12, Jy 23	5 22.8 W	69 35.5	20329	36	36.12	D.C.S.
Glass 2, York River	37 32.5	76 47.4	12, Mh 11	5 01 W	.. ....	.....	*153*	.....	O.W.F.
Beach, Pamunkey River	37 34.8	76 59.7	12, No 9	5 04 W	.. ....	.....	*153*	.....	O.W.F.
Saluda	37 36.2	76 36.1	12, Jy 11	5 14.2 W	69 41.3	20256	36	36.12	D.C.S.
Field, Pamunkey River	37 37.5	77 06.3	12, De 18	5 51 W	.. ....	.....	*153*	.....	O.W.F.
King and Queen C. H.	37 40.4	76 51.6	12, Jy 9	5 36.8 W	69 37.1	20364	36	36.12	D.C.S.
King William	37 41.1	77 00.5	12, Jy 8	5 22.0 W	69 30.5	20503	36	36.12	D.C.S.
White, York River	37 44.0	77 02.6	12, My 11	5 23 W	.. ....	.....	*153*	.....	O.W.F.
Lancaster	37 46.5	76 27.2	12, Jy 18	5 20.2 W	69 44.0	20277	36	36.12	D.C.S.
U, York River	37 47.0	77 06.2	12, Je 10	3 47 W	.. ....	.....	*153*	.....	O.W.F.
Heathsville	37 54.4	76 27.2	12, Jy 19	5 36.8 W	69 43.4	20316	36	36.12	D.C.S.
Tappahannock	37 55.0	76 51.5	12, Jy 13	5 06.9 W	69 49.9	20286	36	36.12	D.C.S.
Warsaw	37 57.8	76 44.4	12, Jy 15	5 50.2 W	69 38.3	20374	36	36.12	D.C.S.
Charlottesville, new	38 02.0	78 30.8	12, Au 3, 5	4 43.7 W	69 56.9	20124	17	76.12	J.R.B.
Montross	38 05.2	76 49.4	12, Jy 16	5 52.2 W	69 54.9	20377	36	36.12	D.C.S.
WASHINGTON.									
Willapa Bay, E. Base	46 42.2	123 58.9	11, Jy 27	23 40.1 E	.. ....	.....	*15*	.....	R.B.E.
Seattle, old	47 39.6	122 18.3	12, Je 13–17	23 43.4 E	70 46.8	19360	18	34.56	P.M.T.
Do	47 39.6	122.18.3	12, Oc 31, 32	23 46.7 E	70 44.7	19349	18	34.56	P.M.T.

TABLE I.—*Magnetic observations on land, July 1, 1911, to Dec. 31, 1912*—Continued.

WEST VIRGINIA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	DC	
	° ′	° ′		° ′	° ′	γ			
Elizabeth	39 03.2	81 21.5	11, Jy 1	2 54.0 W	70 32.5	19976	11	31.12	J.R.B.

FOREIGN COUNTRIES.

ChamePoint,C.Z.	8 39.6	79 41.8	12, Fe 14	4 47.8 E	34.01 0	32485	8	32.12	A.J.
Melones Island, C. Z.	8 48.9	79 36.6	12, Ap 1	4 44.1 E	34 50.6	32154	8	32.12	A.J.
Changarmi, C. Z.	8 53.7	79 33.1	12, Mh 8	4 21.0 E	34 27.6	32436	8	32.12	A.J.
Naos Island, C.Z.	8 54.9	79 32.0	12, Ja 23, 25	3 48.2 E	34 21.6	32488	8	32.12	A.J.
Acapulco,Mexico	16 50.9	99 55.4	12, Ja 4	8 31.7 E	41 51.1	33302	8	32.12	A.J.
Habana, Villa, Cuba	23 06.6	82.22.0	11, Au 9, 10	3 03.0 E	53 40.6	29709	29	76.12	G.H.
Habana, Las Cabanas, Cuba	23 09.3	82 17.6	11, Au 12	3 04.0 E	53 50.5	29576	29	76.12	G.H.
Union 2, British Columbia	49 35.8	124 54.0	11, Jy 20	26 30.9 E	71 12.8	19037	18	34.56	R.R.L.
Do	49 35.8	124 54.0	11, Oc 17	.. ..	71 16.4	19030	18	34.56	R.R.L.
Do	49 35.8	124 54.0	11, Oc 17	26 35.7 E	71 16 3	19124	8	32.12	A.J.
Do	49 35.8	124 54.0	12, Au 10, 12	26 37.9 E	71 15.2	19019	8	32.12	O.J.B.
Do	49 35.8	124 54.0	12, Oc 29	.. ..	71 17.3	19002	8	32.12	O.J.B.

TABLE II.—*Magnetic observations at sea, July 1, 1911, to Dec. 31, 1912.*

ATLANTIC OCEAN.

Place	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Total intensity	Ship	Headings	Sea
	° ′	° ′		° ′	° ′	*c. g. s.*	*c. g. s.*			
Key West Entrance	24 32	81 49	11, Jy 14	2 47 E	55 13	.2921	.5120	Bache	16	Sm.
Key West	24 32	81 50	12, My 22	2 25 E	.. ..	....	....	Hydrographer	16	Sm.
Off Miami	25 45	80 06	12, My 24	1 05 E	.. ..	....	....	Do.	16	Mod. sw.
At sea	26 12	80 00	11, Jy 15	1 22 E	57 31	.2827	.5264	Bache	8	Sm.
Off Florida Coast	27 25	80 07	12, My 16	1 16 E	.. ..	....	....	Hydrographer	16	Choppy.
At sea	27 32	79 48	12, My 24	0 13 E	.. ..	....	....	Do.	16	Mod. sw.
Off Florida Coast	29 21	81 01	12, My 15	0 50 E	.. ..	....	....	Do.	16	Mod. sw.
Do.	29 32	80 44	12, My 25	0 34 E	.. ..	....	....	Do.	16	Sm.
Off St. Johns River	30 25	81 20	12, Je 3	1 05 E	.. ..	....	....	Do.	16	Lt. sw.
At sea	30 30	80 18	11, Jy 16	0 06 E	62 06	.2585	.5524	Bache	8	Sm.
Off Altamaha Sound	31 19	81 11	12, Je 13	0 29 E	.. ..	....	....	Hydrographer	16	Lt. sw.
Off Tybee Roads	32 00	80 37	12, Je 18	0 40 W	.. ..	....	....	Do.	16	Sm.
Do.	32 00	80 40	12, My 10	0 07 W	.. ..	....	....	Do.	16	Lt. sw.
Off Port Royal Sound	32 07	80 27	12, My 9	0 17 W	.. ..	....	....	Do.	16	Choppy.
Off Charleston	32 40	79 44	12, My 9	1 07 W	.. ..	....	....	Do.	16	Choppy.
North of Winyah Bay	33 27	79 02	12, Jy 3	1 36 W	.. ..	....	....	Do.	16	Choppy.
At sea	33 41	78 42	11, Jy 19	.....	65 17	.2394	.5725	Bache	8	Mod. sw.
Off Cape Fear	33 56	77 51	12, My 3	2 26 W	.. ..	....	....	Hydrographer	16	Sm.
Off Beaufort Entrance	34 39	76 43	12, My 3	4 02 W	.. ..	....	....	Do.	16	Sm.
Neuse River	35 02	76 38	12, Jy 18	3 41 W	.. ..	....	....	Do.	16	Sm.
At sea	35 05	75 19	11, Jy 20	.....	67 28	.2201	.5744	Bache	8	
Pamlico River	35 23	76 41	12, Jy 31	4 10 W	.. ..	....	....	Hydrographer	16	Sm.
Pamlico Sound	35 28	75 54	12, Au 5	5 41 W	.. ..	....	....	Do.	16	Choppy.
Hampton Roads	36 57	76 23	12, Ap 29	5 23 W	.. ..	....	....	Do.	16	Sm.
Do.	36 58	76 20	11, Jy 29	5 09 W	68 45	.2104	.5806	Bache	16	Sm.
Do.	37 01	76 14	12, Au 12	5 50 W	.. ..	....	....	Hydrographer	16	Sm.

TABLE II.—*Magnetic observations at sea, July 1, 1911, to Dec. 31, 1912*—Continued.

PACIFIC OCEAN.

Place	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Total intensity	Ship	Headings	Sea
	° ′	° ′		° ′	° ′	*c. g. s.*	*c. g. s.*			
At sea	7 25	82 30	12, Ja 13	4 56 E	31 06	.3321	.3878	Patterson	8	Lt. sw.
Do.	7 27	79 55	12, Ap 17	4 20 E	32 34	.3274	.3885	Do.	8	Sm.
Near Taboga Island	8 47	79 36	12, Ap 16	4 29 E	34 38	.3228	.3923	Do.	16	Sm.
Off Panama	8 54	79 30	12, Ja 15	3 56 E	34 16	.3249	.3932	Do.	16	Choppy.
At sea	9 12	85 27	12, Ja 12	5 30 E	33 28	.3319	.3979	Do.	8	Sm.
Do.	11 57	89 48	12, Ja 10	6 41 E	36 47	.3345	.4177	Do.	8	Sm.
Do.	12 43	89 06	12, Ap 21	5 55 E	38 48	.3278	.4206	Do.	8	Sm.
Do.	13 10	92 26	12, Ja 9	7 05 E	37 59	.3357	.4259	Do.	8	Mod. sw.
Do.	13 42	91 32	12, Ap 22	6 31 E	39 55	.3263	.4254	Do.	3	Mod. sw.
Do.	14 15	95 05	12, Ja 8	7 48 E	39 01	.3329	.4285	Do.	8	Sm.
Do.	15 31	97 23	12, Ja 7	8 16 E	40 25	.3345	.4393	Do.	8	Lt. sw.
Do.	15 33	96 26	12, Ap 24	6 31 E	41 42	.3265	.4373	Do.	3	Sm.
Do.	15 42	93 41	12, Ap 23	6 46 E	41 51	.3295	.4424	Do.	3	Lt. sw.
Do.	16 25	99 16	12, Ap 25	7 06 E	41 58	.3254	.4377	Do.	3	Lt. sw.
Do.	16 45	99 56	12, Ja 6	8 27 E	41 44	.3319	.4448	Do.	8	Lt. sw.
Near Acapulco	16 58	101 06	12, Ja 2	8 35 E	42 19	.3325	.4496	Do.	8	Sm.
At sea	17 10	101 12	12, Ap 27	7 37 E	43 12	.3264	.4477	Do.	3	Lt. sw.
Do.	17 56	103 35	12, Ja 1	8 57 E	42 46	.3299	.4494	Do.	8	Lt. sw.
Do.	19 43	106 12	11, De 31	9 10 E	45 06	.3236	.4584	Do.	8	Choppy.
Do.	21 20	108 09	12, Ap 30	8 43 E	46 35	.3186	.4636	Do.	3	Mod. sw.
Do.	21 53	108 52	11, De 30	10 22 E	47 10	.3172	.4665	Do.	8	Lt. sw.
Do.	23 52	111 36	11, De 29	10 56 E	49 32	.3100	.4776	Do.	8	Sm.
Do.	26 08	113 42	11, De 28	.. ....	51 52	.3005	.4866	Do.	8	
Do.	28 37	115 51	11, De 27	12 31 E	54 24	.2922	.5020	Do.	8	Choppy.
Do.	31 33	117 00	11, De 26	14 32 E	57 14	.2802	.5177	Do.	8	Lt. sw.
Off San Pedro Bay	33 35	118 07	11, De 25	15 17 E	59 14	.2713	.5304	Do.	8	Sm.
Near Point Conception	34 23	120 13	11, De 23	16 17 E	60 07	.2652	.5322	Do.	3	Mod. sw.
San Francisco Bay	37 47	122 22	12, My 13	17 22 E	62 16	.2508	.5389	Do.	16	Sm.
Do.	37 47	122 22	11, De 22	17 47 E	62 08	.2518	.5386	Do.	16	Sm.
Do.	37 48	122 22	11, Jy 11	18 12 E	62 05	.2537	.5418	Explorer	16	Choppy.
Elliott Bay	47 36	122 21	12, My 27	23 05 E	.. ..	....	....	McArthur	8	Sm.
Do.	47 36	122 25	11, My 26	23 08 E	.. ..	....	....	Gedney	8	Sm.
Do.	47 37	122 25	12, My 24	23 49 E	.. ..	....	....	Do.	16	Sm.
Near Point No Point	47 56	122 32	11, Jy 18	23 20 E	.. ..	....	....	Explorer	10	Sm.
Union Bay	49 35	124 53	11, Oc 17	26 01 E	71 15	.1914	.5955	Do.	16	Sm.
Do.	49 36	124 52	11, Jy 20	25 33 E	71 16	.1917	.5970	Do.	16	Lt. sw.
Do.	49 36	124 52	11, Oc 17	27 05 E	71 29	.1891	.5953	Patterson	16	Sm.
Do.	49 36	124 52	11, No 13	26 33 E	.. ..	....	....	McArthur	8	Sm.
Do.	49 36	124 52	12, My 30	25 52 E	.. ..	....	....	Do.	16	Sm.
Do.	49 36	124 52	12, Je 28	25 10 E	71 28	....	....	Explorer	16	Sm.
Do.	49 36	124 52	12, Au 12	25 12 E	71 13	.1915	.5949	Patterson	8	Sm.
Off Cape Mudge	49 56	125 07	11, Au 13	25 32 E	.. ..	....	....	Gedney	16	Sm.
Johnstone Strait	50 15	125 25	11, Oc 29	25 23 E	.. ..	....	....	Do.	8	Sm.
Near Alert Bay	50 35	126 59	11, No 10	25 27 E	.. ..	....	....	McArthur	16	Sm.
Goletas Channel	50 43	127 20	11, No 10	25 00 E	.. ..	....	....	Do.	3	Sm.
Do.	50 49	127 35	11, No 10	25 33 E	.. ..	....	....	Do.	4	Sm.
Dutch Harbor	53 53	166 32	11, Se 27	.. ....	66 32	.2098	.5268	Patterson	8	Sm.
Unalaska Bay	53 54	166 31	11, Se 30	16 22 E	66 43	.2079	.5259	Explorer	8	Sm.
Dixon Entrance	54 38	130 42	11, Au 16	29 14 E	.. ..	....	....	Gedney	8	Sm.
At sea	55 02	148 42	11, Jy 26	.. ....	70 33	.1856	.5574	Explorer	8	
Do.	55 02	162 28	11, Se 23	18 59 E	68 29	.1966	.5361	Patterson	8	Sm.
Clarence Strait	55 30	132 00	12, Je 5	29 52 E	.. ..	....	....	McArthur	7	Sm.
At sea	55 33	154 36	11, Jy 27	.. ....	69 40	.1903	.5476	Explorer	8	Mod. sw.
Do.	55 53	157 53	11, Oc 6	21 30 E	68 58	.2022	.5634	Patterson	3	Lt. sw.
Do.	56 28	164 34	11, Au 3	.. ....	69 08	.1922	.5395	Explorer	8	Choppy.

DESCRIPTIONS OF STATIONS.

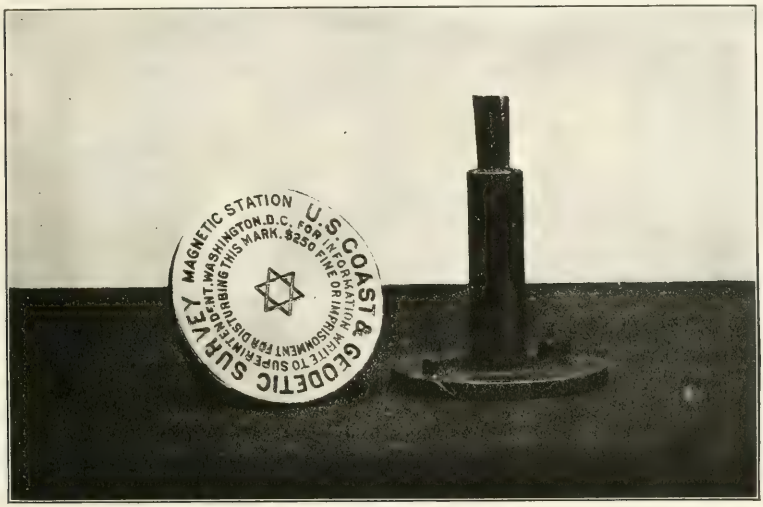
Magnetic observers are instructed to mark every station in as permanent a manner as possible, either with a stone or a post of some durable wood, so that it may be available for future occupation. They are also required to furnish a sufficiently detailed description to locate the station, even if the marking should be destroyed, and to determine the bearings of

two or three prominent objects in addition to the one used as reference mark in the azimuth and declination observations. The information is given in abridged form on the following pages for each of the stations occupied during the year. Further details can usually be obtained upon application to the Superintendent of Coast and Geodetic Survey.

The usual method of marking a station is by a stone post about 3 feet long and 6 or 8 inches square, set so as to project 2 or 3 inches above the ground. In the center of the top is set a circular brass plate 3½ inches in diameter, shown in the illustration below.

Whenever the local authorities desired, and were willing to bear the expense, a second stone was set to mark the true meridian.

The descriptions of stations are arranged alphabetically by States and by names of stations.



ALABAMA.

Anniston, Calhoun County.—The station is situated in a field east of the intersection of Eleventh and Christine Streets and lying south of Eleventh Street. It is 33 feet from the fence to the south and 115 feet from the fence to the east. The station is marked by a granite rock 8 by 8 by 30 inches, projecting 4 inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′	
Spire of Methodist Episcopal Church (mark)	79 33.5	west of south
Northeast edge of roof of residence at northeast corner of Eleventh and Christine Streets	28 59.6	west of north
Extreme southwest edge of roof of residence due north of station	2 59.0	west of north

Ashland, Clay County.—The station is about three-fourths mile north of the center of the town, on a field adjoining the road which runs due north from the east side of the courthouse. The field is the property of Mr. Green, county treasurer. The station is in the north end of the field, 55.5 feet from the wire fence to the west and 40 feet from the fence to the south. It is marked by a granite rock 9 by 9 by 30 inches, projecting 1 inch above ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
East gable of building west of station (mark)	70 02.3	west of south
South gable of building northeast of the north meridian post	4 54.6	east of north
Spire of Baptist Church	9 12.9	west of south

About 850 feet north of this stone a wooden post 4 by 5 by 45 inches, projecting 15 inches above ground, marks the north end of a meridian line.

ALABAMA—Continued.

Athens, Limestone County.—The station is in the county fair grounds, inside the race track. It is 12 feet north of the fence inside the south stretch of the race track, midway between the extreme ends of the track. The station is marked by a limestone post 8 by 12 by 34 inches, projecting 5 inches above the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
North gable of residence, one-fourth mile distant (mark)	23	55.4	west of south
Gable of barn, 350 feet distant	26	40.6	east of south
East gable of residence, 800 feet distant	39	38.1	west of south
South gable of barn on fair grounds	23	19.2	west of north

The north end of the meridian line is marked by a similar stone, with a seven-eighths inch hole drilled in the top and projecting 5 inches above ground. The line is 460 feet long.

Brewton, Escambia County.—The station is in the north central section of a field owned by Mr. Lovelace, about 3 blocks east of the main street and about one-half mile north of the railroad station. It is 121.5 feet from the corner of the fence to the northeast, 87.6 feet from the corner of the fence to the northwest, and 280 feet from the fence to the west. The station is marked by a granite stone 9 by 9 by 30 inches, projecting about 3 inches above the ground, with a Coast and Geodetic Survey plate in the top. The following true bearings were determined:

	°	′	
Church spire in southeast horizon (mark)	32	00.6	east of south
Gable of residence	82	09.3	east of south
Gable of large barn	23	55.5	west of south
Gable of residence	89	44.8	west of south

Camden, Wilcox County.—The station is on the high-school grounds, about 4 blocks north of the courthouse. It is in the southeast corner of the field, 253 feet from the southeast corner of the high school, 86.9 feet from the fence to the east and 58.7 feet from the fence to the south. It is marked by a granite stone 10 by 10 by 30 inches, projecting about 3 inches above the ground, with a station marker in the top. The following true bearings were determined:

	°	′	
Monument in cemetery east of a large oak (mark)	10	15.5	east of north
Cupola of church east of high school	33	11.3	east of north
South gable of high school	25	06.2	west of north
East gable of house	32	00.3	west of south
North gable of house	36	53.5	east of south

The north end of a meridian line is marked by a limestone post 5 by 5 by 24 inches projecting about 5 inches above ground, with a cross in the top.

Courtland, Lawrence County.—The station is in a field three-fourths mile north of the town's center. It is about 485 feet south of the colored school and 265 feet from the corner of the fence inclosing the negro shanty on top of the hill. The station is marked by a limestone post 8 by 8 by 28 inches, projecting 1 inch above the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
South gable of main building of school (mark)	6	12.6	east of north
West gable of residence on main road, 800 feet distant	68	59.9	east of north
West gable of residence on main road, 400 yards distant	30	26.1	east of north
Southeast edge of negro shanty	16	27.2	west of south

Elkmont, Limestone County.—The station is in the northwestern part of a large pasture, across the road from the public school, and about one-fourth mile west of the town's center. It is 78 feet from the fence to the west, and 155 feet from the fence to the north. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
Spire of Methodist Episcopal Church (mark)	71	36.6	east of north
Lower northwest edge of frame schoolhouse	82	32.8	east of north
North gable of barn, 500 feet distant	27	36.3	east of south
North gable of barn, 400 feet distant	0	25.3	west of south
Baptist Church spire	37	18.8	east of north

Eutaw, Greene County.—The station is about one-fourth mile southwest of the center of the village on the public-school grounds. It is 245.7 feet east by north of the northeast corner of the school building, 97.9 feet from the fence on the north side of the grounds, and 102.5 feet from a fence east. The station is marked by a Bedford limestone post

ALABAMA—Continued.

6 by 8 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Spire on Presbyterian Church	35 26.7	east of north
Southeast corner of Rev. D. R. Piper's residence	61 07.2	west of south
Northeast corner of Robert Lett's residence	37 42.1	west of north

A concrete stone 4 by 15 by 30 inches, projecting about 4 inches above the ground and set 308.4 feet south of the magnetic station, marks the south end of the meridian line.

Hartsells, Morgan County.—The station is in an orchard owned by Dr. Day, about one-half mile southwest of the town's center and two blocks north of the high school. It is in the northwest section of the field, 35 feet from the fence to the north and 68 feet from the fence to the west. The station is marked by a limestone post 6 by 8 by 26 inches, projecting 3 inches above ground, marked U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′	
East gable of residence, 300 yards distant (mark)	9 15.9	west of south
West gable of high school	41 09.8	east of south
West gable of residence, on road east of station	65 36.6	east of south
West gable of Dr. Day's residence	45 19.0	east of north
South gable of residence, 200 feet north of Dr. Day's	29 06.6	east of north

Hayneville, Lowndes County.—The station is at the western edge of the village in a pasture belonging to Mr. C. E. Marlett, about one-half mile west of the courthouse. It is 167.4 feet west by north from the southwest corner of Mr. Marlett's barn and 65.2 feet from the fence on the south side of the pasture. Three large pine trees, one bearing west by north, the second northwest, and the third northeast, are 110.6 feet, 111.2 feet, and 81.9 feet, respectively, from the station. The station is marked by a Coast and Geodetic Survey brass magnetic station mark set in a 5 by 6 by 30 inch Bedford limestone post which projects about 2 inches above the ground. The following true bearings were determined:

	° ′	
North edge of chimney on residence of W. B. McWharter (mark)	89 14.8	east of south
Base of spire on St. Andrew's Episcopal Church	63 10.4	east of north
Northwest corner of residence of J. A. Knight	21 30.3	east of north

A granite post 6 by 10 by 36 inches was set 408.7 feet north of the magnetic station to mark the north end of the meridian line.

Lafayette, Chambers County.—The station is on the public land west of the school grounds and about 3 blocks east of the courthouse. It is about 500 feet from the school, 110 feet from the wire fence to the east, 170 feet from the fence to the south, and 160 feet from the fence to the north. The station is marked by a granite stone 10 by 10 by 30 inches projecting about 5 inches above the ground with a brass plate in the top. The following true bearings were determined:

	° ′	
West gable of residence northwest of station (mark)	66 07.6	west of north
Extreme top of weather vane on courthouse	88 53.8	west of south
Center of gable at north end of schoolhouse	76 38.9	east of north
South gable of residence north of station	13 56.9	east of north

Mobile, Mobile County.—The station of 1905 and 1908 was reoccupied. It is on the grounds of the Spring Hill College, about 7 miles west of the courthouse. It is on the athletic grounds, 59 feet and 53.6 feet from the picket fences on the south and west sides, respectively. It is 230.2 feet from the lower left-hand corner of the west steps of the gymnasium. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, set flush with the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Northwest edge of southeast corner post on veranda of main building	57 11.9	east of north
Base of cross on main hall (center)	44 37.4	east of north
Southeast edge of cross on college chapel	26 13.6	east of north
Northwest edge of main building	26 58.7	east of north
Southwest corner of gymnasium	23 40.8	west of north

A 6-inch vertical groove was cut in the outside wall of the gymnasium at a distance of 244.2 feet due north of the magnetic station, to mark the north end of the meridian line.

Monroeville, Monroe County.—The station is on the grounds of the public school, about one-fourth mile due south of the courthouse. It is 99.8 feet from the northeast corner of the school; 106.5 feet from the fence to the north; 97.2 feet from the fence to the east; 101.4 feet from the fence to the south. The station is marked by a granite stone 10 by 10

ALABAMA—Continued.

by 30 inches projecting about 3 inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′
Watertank in northwest horizon (mark)	39 07.7 west of north
East gable of school	80 04.6 west of south
Dome of courthouse	2 31.6 east of north
West gable of house at east end of a field	72 57.5 east of north

The north end of the meridian line is marked by a heavy irregular rock (about 500 pounds), with a one-half-inch hole drilled in the top, and 450 feet north of the magnetic station.

Moulton, Lawrence County.—The station is about a quarter of a mile west of the courthouse, in the north end of a pasture owned by Dr. Masterson, on the south side of the main road from town. It is 105 feet from the road fence to the north, and 43 feet from the bank of the stream to the east. The station is marked by a stone 6 by 8 by 26 inches, projecting 3 inches above the ground and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′
West gable of barn (mark)	25 24.7 east of south
North gable of Christian Church	41 56.6 east of south
North gable of Masterson's residence	62 34.7 east of south
Courthouse spire	86 54.4 east of south
Methodist Church spire	71 58.8 east of north

A stone 4 by 9 by 22 inches, projecting 2 inches above ground and having a one-eighth-inch hole in the top, marks the south end of a meridian line, 945 feet long.

Pell City, St. Clair County.—The station is situated about 500 feet north of the courthouse and northwest of the public school. It is 94 feet from the embankment on the northwest edge of the field, and 37 feet from that on the northeast edge. It is marked by a granite post 8 by 8 by 32 inches, projecting 11 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Gable of building on hill to northwest (mark)	45 10.9 west of north
Lower northwest edge of courthouse	2 54.6 west of south
Center of ball at extreme top of brick school	65 21.1 east of south
South gable of residence on northeast corner of crossroads	14 03.2 east of north

Prattville, Autauga County.—The station is about one-half mile southeast of the center of the town, on the high-school grounds. It is 209.3 feet east by north from the northeast corner of the high school building. An oak tree bearing about north by east is 195.4 feet from the station. The station is marked by a Bedford limestone post 5 by 6 by 35 inches, projecting about 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Spire of grammar school building, about one-fourth mile away (mark)	23 25.3 west of north
Flagpole on county jail	49 15.0 west of north
Base of spire on Presbyterian Church	55 05.5 west of north
Cupola on Sunday school room of the Presbyterian Church	55 18.8 west of north
Northwest corner of high-school building	80 50.8 west of south

A Bedford limestone post 5 by 7 by 35 inches, set 293.7 feet south of the station, marks the south end of the meridian line. The stone projects about 5 inches above the ground and has a cross in the top to indicate the position of the meridian line. This stone is 43.8 feet northeast of a large oak tree.

Selma, Dallas County.—The station of 1908 was reoccupied. It is in the northeast corner of the county fair grounds, about 1½ miles north of the center of the town. It is 84.5 feet west and 86.3 feet south of the fence around the grounds and 140 feet northeast of the fence around the inside of the race track. It is marked by a limestone post 6 by 8 by 33 inches, projecting about 12 inches above the ground and lettered U. S. C. & G. S., 1903. The following true bearings were determined:

	° ′
First spire east of water tank (mark)	4 18.0 west of south
Water tank	2 44.3 east of south
Baptist Church spire	11 48.2 west of south
Cupola on courthouse	9 37.5 west of south
Spire of Methodist Episcopal Church	13 28.5 west of south

ALABAMA—Continued.

Tuscumbia, Colbert County.—The station is in the southwest corner of the fair grounds, about one-fourth mile south of the town's center. It is on the outside of the track, 58 feet from the fence marking the south border of the grounds, and 26 feet from the fence on the outside of the race track. The station is marked by a limestone post 8 by 8 by 30 inches projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	° ′	
Cupola on courthouse (mark)	0 32.9	west of north
Spire of Methodist Episcopal Church	15 07.8	east of north
Lower end of flagpole on public school	30 05.4	east of north
West gable of colored public school	75 33.0	east of north

Tuskegee, Macon County.—The station is on the playgrounds of the Tuskegee Institute, about three-fourths mile west of the center of the town. It is 50 feet from a footpath which leads to several large residences west of the institute grounds. It is marked by a granite stone 10 by 10 by 30 inches, projecting about 6 inches above the ground. The following true bearings were determined:

	° ′	
Small spire at extreme top of office on institute grounds (mark)	7 57.4	east of north
Center of top of water tank	63 13.1	east of north
Center flagpole east of water tank	70 22.8	east of north
Southwest gable of building at north end of field	15 46.8	west of north

The north end of a meridian line 450 feet long is marked by a granite stone 9 by 24 by 40 inches, projecting 8 inches above ground.

Wetumpka, Elmore County.—The station is on the property owned by Mrs. Samuels adjoining the public park. It is about three-fourths mile north of the center of the town, on the west side of the river; 201 feet from the southeast corner and 124 feet from the northeast corner of the small field to the west. It is marked by a granite post 9 by 10 by 30 inches projecting about 4 inches above the ground, with a Coast and Geodetic Survey plate in the top. The following true bearings were determined:

	° ′	
Nail on tree stump approximately due north (mark)	0 51.4	west of north
Extreme southeast corner of roof of negro shanty west of station	74 01.3	west of south

ALASKA.

Chinitna Bay.—The station is on the low point on the south side of the bay about 2 miles west of the entrance. It is on the outer end of the point about 50 feet from high-water mark and 44.7 feet from hydrographic signal camp. It is marked by a cement post 6 by 6 by 36 inches projecting about 2 inches above the ground and lettered U. S. C. S. B. M.

Cold Bay.—Magnetic observations were made at the triangulation station Cold, which is on the point at the southeastern entrance to Cold Bay. It is on the highest part of a bluff, about 90 feet above sea level, and is about 75 feet back from the face of the bluff. It is marked by a triangulation station mark with a few small bowlders set around it. Declination observations were also made at a point 40 meters from Cold in the direction of King, which bears 79° 25′.9 east of true north.

Dutch Harbor.—The station is on Amaknak Island on the hill just southeast of the village of Dutch Harbor, near the station of 1908. It is about 164 feet south of a water tank covered with sod and 98 feet south of the azimuth mark, on a line from the azimuth mark to the astronomical station in Unalaska. The station is marked by a bottle with its top 1 foot below the surface and by a bowlder 6 by 10 by 16 inches, with a 1-inch drill hole to mark the exact spot. The astronomical station bears 0° 01′.0 west of true south.

Goodnews Bay.—The magnetic station is 78 feet northeast of triangulation station northeast base, in prolongation of the line from southwest base.

Northeast base is on the south spit at the entrance to the bay. It is about 650 feet from the extreme northerly point of the spit and about 65 feet from high-water mark on the bay side. It is marked by a copper bolt set in a concrete base about 1 foot square.

Ketchikan.—The station of 1907 was reoccupied. It is on the northeastern end of Pennock Island, in front and a little north of the northern Indian burial ground. It is about 60 yards from the end of the island, 5 yards from high-water mark, and 50 yards east of a large spruce tree which is blazed on its northern face about 8 feet above the ground. The station is marked by a cement block about 1 foot square projecting about 3 inches above the surface and lettered U.S.C.&G.S., 1907. The following true bearings were determined in 1907:

	° ′	
Flagpole on schoolhouse cupola	45 35.1	east of north
Sharp peak south of Ketchikan	80 01.1	east of north
East end of wharf on Pennock Island	72 44.4	east of south

ALASKA—Continued.

Port Graham.—The station is about 350 feet from the west side of the wharf and about 3 feet beyond the 2-foot embankment formed by storm or spring high water. It is in line with the south side of a blazed tree and the southwest corner of a log house, distant, respectively, 29 feet and 36.9 feet. It is marked by a cement post 6 by 6 by 30 inches, projecting about 2 inches above the ground, with a bronze station mark set in the top.

Security Cove.—The magnetic station is 64.4 feet north, 74° 48′ west from triangulation station Tell on the line to topographic signal Ma.

Tell is on the eastern side of the summit of the bold headland which separates Security Cove from the small cove on the west. There are numerous large projecting rocks or crags on the brow overlooking Security Cove, and Tell is in a crack in the highest of these crags. It is marked by a stake 27 inches long projecting 1 foot above the ground and having a small cairn of stones around it.

Turednі Harbor.—Magnetic observations were made near the triangulation station Edni, in the direction of Tooth, a rocky prong on the bluff line on the north side of the harbor. The station is on the south side of Chisik Island, about 4.5 miles from the southeast point, near the site of an old settlement. It is 16 feet back from the crest of the shingle beach and 80 feet from the southeast corner of an old frame house.

ARKANSAS.

Arkadelphia, Clark County.—The station is on the grounds of the Methodist College, which is in the northwest corner of the city, about 1 mile from the center of town. It is 242 feet nearly due west of the southwest corner of the main college building, 60.2 feet from the wire fence on the west, and 243 feet from the wire fence on the south of the campus. The station is marked by a Bedford limestone post 8 by 8 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Center of arch of entrance to grounds (mark)	52 27.6 east of south
Northwest edge of college building	70 48. 0 east of north
East edge of east chimney on schoolhouse	6 54.3 east of south
Spire on Colored Baptist Church	5 23.6 west of south

Arkansas City, Desha County.—The station is located in the northeast corner of the courthouse square, 28.4 feet from the board fence on the north and 44.8 feet from the east fence. Maple trees to the west, north by east and south by east are distant, respectively, 20 feet, 19 feet, and 12 feet. It is marked by a granite post 6 by 6 by 30 inches, with a brass plate in the top and projecting 4 inches above the ground. The following true bearings were determined:

	° ′
St. John Baptist Church, colored (mark)	66 59.0 west of south
Flagpole on schoolhouse	83 47.6 east of north
Courthouse dome	20 35.7 west of south
First Baptist Church (colored)	81 31.7 west of north

Ashdown, Little River County.—The station is in the east corner of the courthouse yard, 108.8 feet east of the east corner of the courthouse, 30.2 feet from the northeast fence, and 30.2 feet from the southeast fence. The station is marked by a Bedford limestone post, 6 by 6 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Methodist Church spire (mark)	54 56.5 east of north
Southeast corner of Johnson Hotel	89 45.3 east of north
Cupola on house	14 36.6 east of south
South edge of courthouse	74 18.7 west of south

Brinkley, Monroe County.—The station is located near the middle of the cemetery, 33 feet south of the fence which divides the new addition from the old cemetery, and 274 feet west of the east fence. It is 59.5 feet southwest of a small outhouse. The Wade monument is 45.9 feet to the west and the Savage monument is 19.6 feet southeast of the station. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, having a brass station marker in the top and set level with the surface of the ground. The following true bearings were determined:

	° ′
Center of dome on schoolhouse (mark)	5 07.0 east of south
Southeast corner of brick colored school (under eaves)	22 24.9 west of south
Center shaft of water-tank support	59 07.0 east of south
Flagpole on schoolhouse	6 20.1 east of south
Center of black smokestack at electric-light plant	1 01.1 east of south

El Dorado, Union County.—The station is located in the southwest corner of the schoolhouse grounds, about three blocks south and two blocks west of the courthouse. It is 242.3 feet southwest of the southwest corner of the schoolhouse, 44.6 feet northeast of a city water hydrant, 30.6 feet southeast of a large oak tree, and 86.6 feet northwest of a large pine

ARKANSAS—Continued.

tree. The station is marked by a concrete post 6 by 6 by 30 inches, projecting about 4 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	45	52.3	east of north
Garrett Hotel flagpole	51	41.3	east of north
Tip of water tank	77	37.9	east of south
Southeast corner of schoolhouse, under cornice	77	57.4	east of north

Fordyce, Dallas County.—The station is located in the grounds of the training school which is one block north and three blocks west of the courthouse. It is 178 feet northeast of the northeast corner of the training school, 126 feet west of a carpenter shop across the street, and 66.6 feet from a tree to the northwest of the station. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, lettered U. S. C. & G. S. 1912, projecting about 2 inches above the ground. The following true bearings were determined:

	°	′	
Baptist Church spire (mark)	0	56.3	west of south
Southeast corner of training school	36	38.2	west of south
Top of house to east	89	20.7	east of south

Hamburg, Ashley County.—The station is located in the southeast corner of the schoolhouse grounds, 196 feet east of the southeast corner of the building, 23.8 feet from the east fence, and 50.8 feet from the south fence. Trees to the north and southwest are distant 42 feet and 26.4 feet, respectively It is marked by a wooden stake 1½ feet long and 1½ inches in diameter at the top, driven in the ground so that only 1 inch projects. The following true bearings were determined:

	°	′	
Southeast corner of schoolhouse (mark)	86	08.5	west of south
Northeast corner of schoolhouse	79	01.0	west of north
Center of top of windmill to northeast	26	58.7	east of north
Southeast edge of house to east by north across the street	74	30.1	east of north

Hampton, Calhoun County.—The station is located on the schoolhouse grounds. It is 139.6 feet northeast of the northeast corner of the schoolhouse, 171.5 feet west of the east fence inclosing the schoolhouse grounds, and 15.5 feet west of a small pine tree. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, lettered U. S. C. & G. S., 1912, and projecting 4 inches above the ground. The following true bearings were determined:

	°	′	
Courthouse cupola (mark)	81	42.0	west of north
Southeast corner of schoolhouse	43	59.5	west of south
W. C. Dunn's house, top of peak	57	52.3	west of north

Hot Springs, Garland County.—The station is on the Government reservation park on Reserve Avenue, about one-fourth mile east of the building occupied by the Department of the Interior. It is on a knoll 188 feet east of the end of the stone wall surmounted by an iron railing which incloses the park and 103 feet west of driveway leading to the new medical officer's house. It is 20 feet north of the wire fence along Reserve Avenue, 15 feet from a pine tree to the northwest, and 12.6 feet from a pine tree to the northeast. The station is marked by a limestone post 8 by 8 by 30 inches, lettered U. S. C. & G. S., 1912, and projecting 6 inches above the ground. The following true bearings were determined:

	°	′	
Schoolhouse flagpole (mark)	25	58.7	east of south
Colored Methodist Church spire	22	07.8	west of south
Courthouse spire flagpole	31	13.9	west of south
Highest spire on Eastman Hotel	64	16.5	west of south

Lake Village, Chicot County. The station is located in the southwest corner of the school grounds which is on the lake front, about eight blocks due south of the courthouse. It is 140 feet southwest of the southwest corner of the building, 122 feet south by east of the toilet, 76.3 feet east of the west fence, and 16.3 feet north of the south fence. It is marked by a marble post 6 by 6 by 30 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Tip of water tank (mark)	14	37.7	east of north
Southeast corner of schoolhouse (under eaves)	62	08.8	east of north
Windmill to southeast	17	42.3	east of south

Lewisville, Lafayette County.—The station is in the northeast corner of the courthouse square, 194.6 feet northeast of the northeast corner of the courthouse, 21.4 feet from the north fence, and 20 feet from the east fence. The station

ARKANSAS—Continued.

is marked by a Bedford limestone post 6 by 6 by 30 inches projecting 5 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Southeast corner of jail (mark)	47	13.6	west of south
Cupola on Baptist Church	22	02.4	east of south
Southeast corner of courthouse	24	03.5	west of south

Little Rock, Pulaski County.—The station of 1901 was reoccupied. It is on the parade ground of Fort Logan H. Roots, about 3 miles northwest of Little Rock. It is about 700 feet southwest of the west end of the barracks and about 125 feet due east of the drive. It is marked by a gray limestone post 7 by 7 by 36 inches, sunk flush with the surface of the ground and lettered U. S. C. & G. S. This stone marks the north end of a meridian line established in 1901. The south end is marked by a similar stone set 444.5 feet distant. The following true bearings were determined:

	°	′	
Tip of tower on Maddox Female Academy (mark)	4	29.5	east of south
Water tank on grounds	47	20.7	east of north
Water tank across river	3	31.8	west of south

Magnolia, Columbia County.—The station is in the southeast corner of the grounds of the Southwestern Academy. It is 31.6 feet from the south fence, 31.5 feet from the east fence, and 26.7 feet northeast of a small tree. The station is marked by a concrete stone, 6 by 8 by 30 inches, projecting about 4 inches above the ground, with a brass magnetic station marker in the top. The wooden form inclosing the post projects a few inches higher. The following true bearings were determined:

	°	′	
Baptist Church spire (mark)	40	24.8	west of south
J. L. Davis's house cupola	8	18.9	west of south
Schoolhouse flagpole	77	31.0	west of north

Malvern, Hot Spring County.—The station of 1901 was reoccupied. It is about 1 mile south of the town on the grounds of Mr. MacHenry on Main Street 122 feet east of the west iron fence inclosing the yard, 74.5 feet north of the concrete walk leading from the front gate to the house, and is 21 feet east of a telephone pole. The station is marked by a stone post 8 inches square, set so as to have 2 inches projecting above the surface of the ground. The following true bearings were determined:

	°	′	
West gable end of house (mark)	12	25.3	east of north
Southeast edge of house, 845 Main Street	9	34.7	west of south
East gable end of greenhouse on Main Street	81	40.5	west of north

Nashville, Howard County.—The station is in the northeast corner of the courthouse grounds, 179.3 feet northeast of the northeast corner of the courthouse and 168.7 feet north of the northwest corner of the jail. Cedar trees to the north-northwest and north-northeast are distant 41.6 feet and 33 feet, respectively. The station is marked by a Bedford limestone post, 6 by 6 by 30 inches, projecting about 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Spire on old schoolhouse (mark)	68	54.8	west of south
Courthouse spire	58	13.3	west of south
Second Baptist Church spire	50	25.6	west of north
Northwest corner of jail	15	14.6	west of south

Prescott, Nevada County.—The station is in the city park, just east of the Park Hotel. It is 146 feet due west of the southwest corner of the open-air tabernacle and 176 feet southwest of the northwest corner of the tabernacle. A large oak tree about 1½ feet in diameter is 33.5 feet to the northeast of station, and another oak tree is 86 feet southwest of the station. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 4 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Courthouse dome (mark)	31	58.8	west of south
Baptist Church spire	30	10.2	west of south
Catholic Church cross	51	36.8	west of south
Southwest corner of First National Bank	87	33.0	west of north

Stuttgart, Arkansas County.—The station is located in the northwest corner of a preparatory school grounds on Fifteenth Street. It is 154 feet northwest of the northwest corner of the girls' dormitory, 21.3 feet south of the front sidewalk and 132.5 feet west of the sidewalk leading to the girls' dormitory. It is marked by a marble post 6 by 6 by

ARKANSAS—Continued.

30 inches, with a brass plate set in the top and projecting about 2 inches above the ground. The following true bearings were determined:

	°	′	
Christian Church spire (mark)	0	32.2	west of north
Mr. Powell's house cupola	2	32.1	west of north
Southwest corner of schoolhouse	62	50.7	east of south
Tip on water tank at fair grounds	0	48.6	west of south

Varner, Lincoln County.—The station is located in the northwest corner of Mr. Rice's yard which is just across the railroad track to the south of the depot and the only house of any size in Varner. It is 25.7 feet from the fence measured to the northwest, 15.4 feet from the fence measured to the northeast, and 74 feet north of the northwest corner of the house. It is marked by a granite post 6 by 6 by 30 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Southwest corner of Mr. Rice's house (mark)	29	51.6	west of south
Northwest corner of old courthouse (under eaves)	74	45.9	west of north
Southeast corner of R. R. Rice's store	53	14.3	east of south

Washington, Hempstead County.—The station is in the northeast corner of the schoolhouse grounds, 74.7 feet north of the northeast corner of the schoolhouse, 21.3 feet from the northwest fence, and 17 feet from the northeast fence. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, set level with the surface of the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Southwest corner of Mr. Garner's store (mark)	64	21.3	west of south
Southeast corner of schoolhouse	10	02.1	west of south
Colored church (across street)	53	55.4	east of north
Southeast corner of corner porch post on hotel	70	05.2	west of south

CALIFORNIA.

Goat Island, San Francisco County.—The station of 1904 was reoccupied. It is near the center of the plateau just west of the hill at the extreme eastern end of the island, on ground belonging to the Army. The station is 50 feet north of the line of the two flagpoles, one of which is on the highest part of the island and the other on the southern part of the lawn in front of the officers' quarters. The station is marked by a rough stone 6 by 6 by 12 inches, projecting about 1 inch above ground and having a flat top in which there is a small hole to mark the exact spot. The following true bearings were determined in 1904:

	°	′	
Flagstaff on highest part of island (mark)	44	59.5	west of south
Base of flagstaff on lawn	42	47.3	west of south

San Diego, San Diego County.—The station called San Diego No. 1, established in 1905 by the officers of the magnetic survey yacht *Galilee*, of the department of terrestrial magnetism of the Carnegie Institution of Washington, was reoccupied. It is near the north point of North Coronado Beach Island, about 10 feet above the sea. It is marked by a spruce-wood post 6 by 6 inches, lettered C. I., 1905, and projecting about 1 foot above the surface. The station is about 320 yards west of the west corner of the engine house at Spreckel's marine railway. Harbor Beacon No. 10, in the bay, bears approximately north-northwest from the station. The following true bearings were determined in 1908:

	°	′	
Flag pole on south tower of Coronado Hotel	21	19.8	east of south
Center of dome of School of Theosophy	83	10.4	west of north
Bennington monument	61	35.5	west of south
Smokestack, power house	85	36.9	east of north

DELAWARE.

Delaware City, Newcastle County.—Observations were made in the cemetery about three-fourths mile west northwest of town, at a point near the center of a pathway. The station is 20 feet north of the south hedge of the cemetery, about 130 feet west of the east hedge, and 97 feet southeast of a cedar tree whose trunk is forked into six stems. The station is marked by a piece of 4-inch tile pipe, 2 feet long, set with its bell end even with the ground, the top part being filled with neat Portland cement, in which the regular magnetic station mark is embedded. The following true bearings were determined:

	°	′	
Southeast gable of red barn (mark)	23	10.4	west of north
Spire of brick Methodist Church	49	08.0	east of north
East gable of Mr. Saxon's two-story frame house, about 400 feet away	34	58.1	west of south
Southeast gable of large red barn about one-half mile away	52	37.8	west of north

DELAWARE—Continued.

Middletown, Newcastle County.—Observations were made at a point in the yard of a country schoolhouse, about 2 miles west-southwest of town. The schoolhouse is on the main macadam highway leading to Cecilton, Maryland, on the north side, and nearly opposite the brick farm house belonging to William Green. The station is near the north corner of the yard, 12 feet from the side fence, 15 feet from the back fence, and 45 feet north of the north corner of the schoolhouse. The station is marked by a piece of 4-inch tile pipe, 1 foot long, buried with the top of the bell end flush with the ground and having a brass plate set in cement in the top. The following true bearings were determined:

	°	′	
East gable of red barn about 1 mile away (mark)	64	16.3	west of north
South gable of white barn next to yellow house	29	15.7	east of north
North gable of largest white barn on Wm. Green's farm	70	28.8	east of south
East gable of large frame house about one-half mile away	70	32.6	west of south

Newcastle, Newcastle County.—The station is about one-half mile west southwest of the center of the town on an embankment or levee of cinders separating the Delaware River from a marsh. It is about 445 feet west of the place where the embankment is met by a road through the marsh, having telegraph wires along it; about 360 feet west of the westernmost of five signal posts standing on the embankment; about 315 feet east of the nearest part of the foundation of a dismantled brick building said to have been once a factory of the National Tube Co. It is 15 feet back from the edge of the bank next to the river, 49 feet east of a small apple tree on the bank, 34 feet south of a small apple tree on the back slope of the bank, and 47 feet west of a hawthorn tree near the river edge of the bank. The station is marked by a marble post 5 by 5 by 16 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Northwest gable of small red barn one-fourth mile away (mark)	73	45.1	west of south
East gable of Edgar Allen factory (brick building)	42	50.2	west of north
Southwest gable of yellow frame house about 1,000 feet away	60	15.5	east of north
Lighthouse at end of breakwater or jetty	3	47.2	east of south

Seaford, Sussex County.—The station of 1910 was reoccupied. It is about one-fourth mile east of town's center, in the open lot south of the mill and northwest from Mr. Ollie Williams's house. It is 52 feet northeast of a tree, 109 feet south of the southwest corner of the brick base of smokestack at mill and 112 feet west of a fence along the east side of the road. The station is marked by a marble post, lettered U. S., 1910, and set level with the ground. The following true bearings were determined:

	°	′	
Methodist Church spire (mark)	76	55.3	west of south
South edge of top of chimney on Sussex Hotel	87	07.7	west of south
East edge of base of smokestack at gristmill	3	54.0	east of north
North gable of house	4	43.2	west of south

Smyrna, Kent County.—Observations were made in the Odd Fellows' Cemetery about one-half mile southeast of the center of the village, at a point about 10 feet from the edge of the bank at the northwest boundary of the cemetery. The station is at the middle of a pathway parallel to and about 200 feet from the public highway. It is 47 feet south-southwest of the south corner post of the lot of W. G. Lees, 22 feet northwest of the west corner post of the Wrench lot, and 49 feet north of the north corner of the base of the tombstone of Georgeanna Pearson. The station is marked by a marble post 6 by 6 by 18 inches, set flush with the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
West edge of top of brick chimney of mill, 500 feet away	12	29.0	west of north
Southwest gable of house in cemetery, 400 feet away	72	17.2	east of south
Peak of standpipe cover	87	06.8	west of north
Belfry of schoolhouse	64	34.8	west of north

FLORIDA.

Jupiter, Palm Beach County.—The station of 1906 was re-covered. It is 20 feet back from the edge of the sea bluff, and is surrounded with scrub palmettos 4 to 6 feet high. Cabbage palmettos are to the west of it, but on lower elevation. The underground mark consists of a wine bottle, mouth up, 28 inches below the surface of the ground. The surface mark is a 5 by 5 inch wooden painted post, projecting 14 inches above ground, with a copper nail in the top. One side of the post near the top has carved on it the letters U. S. The following true bearings were determined in 1906:

	°	′	
Chimney on house of C. R. Carlin (mark)	67	33.4	west of south
Spire on lighthouse	71	02.6	west of north
West gable of boathouse at old life-saving station	6	41.9	east of south
East gable of house of Harry Dubois	50	16.8	west of south

FLORIDA—Continued.

Owing to proximity of fishermen's shanties, magnetic observations were made on the beach, 270 feet southeast of the station of 1906. The spot was marked by a wooden stake.

Key West, Monroe County.—The station of 1903 was found to be no longer suitable for magnetic observations, and a new station was established about 4½ miles southeast of Key West, on grounds belonging to the United States Government. It is about 350 yards west of an old fort locally called the "Upper Tower," and about 100 feet north from a low artificial embankment running from the tower. It is marked by a cement post, 10 by 10 inches, projecting 6 inches above ground and lettered U. S. C. & G. S., 1911. The following true bearing was determined:

	° ′	
South corner of tower	82 26.4	west of north

Miami, Dade County.—The station of 1903 was reoccupied. It is on the site of old Fort Dallas, on grounds owned by Mr. Tuttle and leased by the Seminole Club. It is 32.2 feet north of a poinciana tree, 71.8 feet southeast of the flagpole and 24.5 feet from an hibiscus north of west. The station is marked by a limestone post, 18 by 7 by 7 inches, set level with the ground and lettered on top U. S. C. & G. S., 1903. The following true bearings were determined in 1903:

	° ′	
Presbyterian Church spire (mark)	20 35.0	east of north
North edge of city water tower	88 31.9	west of north
Southeast corner of Royal Palm Hotel	68 20.7	east of north

GEORGIA.

Abbeville, Wilcox County.—The station is in the southern part of the grounds surrounding the grade school, about one-half mile west of the town's center. It is 38.5 feet from the fence to the south, 137.2 feet southwest from the southwest corner of the central school building, and 128.7 feet southeast from the southeast corner of the western school building. It is marked by a cement post, 8 by 9 by 24 inches, projecting about 3 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′	
Base of rod at top of courthouse cupola (marked)	75 49.4	east of north
Top of water tank	73 20.0	east of north
Lower southeast corner of eastern school building	55 35.2	east of north

Americus, Sumter County. The station is in the northwestern corner of the pasture of the Agricultural College, about 1½ miles southeast of the town's center and about 450 feet southwest of the main college building. It is 46.5 feet east of the fence on the west, and 59 feet south of the fence on the north. It is marked by a limestone post 4 by 6 by 30 inches, projecting about 3 inches above the ground, and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′	
Upper east corner of dormitory building, under eaves (mark)	0 57.5	east of north
Top of cupola on Mrs. Hill's house	48 08.9	west of north
Rod at top of a cupola on a dwelling	69 34.3	west of north

The south meridian post is of limestone 8 by 8 by 33 inches, projecting 7 inches above the ground. It has a hole in the top to mark the exact spot. It is about 270 feet from the magnetic station.

Appling, Columbia County.—The station is on the grounds of the Methodist Church, about a quarter of a mile southwest from the center of the village. The northwest corner of the church building is 151.5 feet east, the public school building 145.2 feet south, W. K. Jones's yard fence 254 feet west, and a field fence 159 feet north by east. A hickory tree is 55.2 feet east by south from the station. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, projecting about 1 inch above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Southeast corner of A. W. Smith's farm house (mark)	65 00.5	west of south
Lightning rod on A. W. Smith's barn	77 06.1	west of south
Southwest corner of Columbia County courthouse	72 07.7	east of north
Northeast corner of C. P. Knox's farm house	20 23.8	east of north

A granite stone 12 by 12 by 48 inches, projecting about 8 inches above the ground, was set 412 feet due north of the station.

Ashburn, Turner County.—The station is in the southeastern corner of the grounds surrounding the public school, about one-half mile northeast of the town's center. It is 49.5 feet northwest from the fence to the southeast, 143.1 feet southwest from the fence to the northeast, and 207 feet southeast from the southeast corner of the south school

GEORGIA—Continued.

building. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Top of cupola on jail (mark)	65 43.0 west of south
Top of town water tank	60 02.8 west of south
Rod at top of cupola of courthouse	67 36.2 west of south
Top of steeple of Baptist Church	77 41.4 west of south
Top of a cupola	29 02.0 west of north

The north meridian point is 271.3 feet distant and consists of a cement post 6 by 8 by 30 inches, projecting about 5 inches above the ground with a small brass tube set in the top.

Augusta, Richmond County.—The station of 1900 and 1905 in May Park was reoccupied.

The old station being unsuited for future magnetic work, a new station was established on the grounds of the Georgia-Carolina Fair Association, in the north end of the area inclosed by the race track, about 2 miles northwest of the center of the city, and about 3 miles from the old station. It is 112.5 feet from a fence to the northwest, 219 feet from the fence to the northeast, 305 feet from the fence to the southeast. The fence which runs along the northeast end of the football field is 169 feet from the station. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, and having in the top a brass magnetic station marker. The following true bearings were determined:

	° ′
Southeast corner of Hampton Terrace Hotel (mark)	74 20.1 east of north
Flagpole on tower of John P. King's cotton mill	46 10.3 east of south
Flagpole on Bon Air Hotel	23 08.5 west of south
Flagpole on main exhibition building on fair grounds	25 37.2 west of south

A granite stone having a copper plug in its center was placed 350 feet south of the magnetic station to mark the meridian line.

Bainbridge, Decatur County.—The station is in the northeastern part of the city, in what is called the Fair Grounds, the property of Mr. George Griffin. It is south of the race track and northeast of the baseball diamond, in what would be the territory between the center and right fielders. It is about 85.3 feet from the outside edge of the race track, 233.8 feet southeast from the center of the trunk of a blazed pine tree, and 118.5 feet west from the southwest corner of a small negro cabin painted white. It is marked by a cement post 8 by 9 by 24 inches, projecting above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Lower west edge of mill smokestack (mark)	0 26.6 east of south
Three nails in vertical row in blaze of pine tree	62 47.7 west of north

Blakely, Early County.—The station is in the northwestern corner of the grounds surrounding the public school, about one-half mile west of the town's center. It is about 57 feet east of the center of the road to the west, about 80 feet southeast from the south track of the Central of Georgia Railroad, and about 99 feet a little west of north from the center of the trunk of a post oak tree, about 2½ feet in diameter. It is marked by a limestone post 4 by 6 by 30 inches, projecting about 4 inches above the ground and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′
Top of cupola on Dr. S. W. Davis's house (mark)	78 03.5 west of south
Spire at top of bay window of Dr. Mulligan's house	24 06.2 west of south

Butler, Taylor County.—The station is in the southeast portion of the village, on the public school grounds. It is 424.8 feet north of the northwest corner of the school building, 55.2 feet from the fence on the west side, and 186.5 feet from the fence on the east side of the school property. Two poplar trees, one bearing east and the other southeast, are 47.6 feet and 56.3 feet from the station. The station is marked by a Bedford limestone post 6 by 7 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′
Southwest corner of Methodist Episcopal Church tower (mark)	68 17.8 west of north
Center of spire on Methodist Episcopal Church	67 43.0 west of north
Base of spire on public-school building	2 31.4 east of south
Top of Butler waterworks tank	45 59.1 east of north
Point on tower of Primitive Baptist Church	46 16.8 west of south

A second stone, 8 by 8 by 30 inches, was set 314.3 feet due south of the magnetic station. It projects about 3 inches above the ground and has a cross cut on its face.

GEORGIA—Continued.

Carnesville, Franklin County.—The station is in the western corner of a pasture owned by Mr. Benjamin Edaho, immediately southwest of the schoolhouse grounds, and about one-fourth mile south of the town's center. It is 76.7 feet northeast from the southwest fence of the pasture, 94.5 feet southeast from its northwest fence, and 134.9 feet east from the center of the trunk of a locust tree at its west corner. It is 400 feet southwest from a small mound used by the first settlers as a cemetery. It is marked by the neck of a dark glass quart bottle buried about 7 inches below the surface of the ground. The following true bearings were determined:

	° ′
Spire of Methodist Church (mark)	24 04.4 east of north
Top of dome of county courthouse	22 08.0 east of north
South gable point on roof of Benjamin Edaho's house	19 42.6 east of north
Top of dome of schoolhouse	73 55.8 east of south

Cleveland, White County.—The station is in the southwest corner of a pasture belonging to A. H. Henderson, about 700 feet northeast from the cemetery, and about one-fourth mile northeast of the town's center. It is on the north bank of a small stream or branch and about 200 feet a little north of east from a barn. It is 101 feet north from the fence bounding the pasture on the south and 180.2 feet east from the fence bounding the pasture on the west. It is marked by a limestone post 6 by 6 by 30 inches which projects 5 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Spire of Methodist Church (mark)	63 35.0 west of south
North gable point on Frank Canemer's house	55 57.9 west of south
Lower northwest corner of Mr. Whittaker's house	59 33.3 west of south

Colquitt, Miller County.—The station is in the northwestern part of a large pasture belonging to Mayor Wilkens, about one-half mile northwest of the town's center. This pasture is immediately northwest of the corner of Main Street and West Main Street. The station is 85.7 feet east of the fence bounding the pasture on the west and about 315 feet south of the edge of a grove of trees in a draw. It is 86.5 feet southeast from a small pine tree about 4 inches in diameter (the second pine tree along the west fence south of the draw) and 87.4 feet northeast of a small pine tree about 4 inches in diameter (the third pine tree along west fence). It is marked by a limestone post 4 by 6 by 30 inches, projecting about 3 inches above the ground and lettered U. S. C. & G. S., 1911, with a hole in the center. The following true bearings were determined:

	° ′
Spire on cupola of county courthouse (mark)	55 01.1 east of south
Top of town water tank	61 26.4 east of south
North gable point on a large barn	50 24.5 east of north

Cordele, Crisp County.—The station is in the southeastern corner of the City Park, about one-half mile southeast of the town's center, and to the east of the home plate of the base ball diamond. It is about 75 feet north of the road line to the south and about 147 feet west of the road line to the east. It is marked by a cement post 8 by 9 by 24 inches, projecting about 3 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Top of cupola of Cordele Sanatarium (mark)	82 17.4 east of north
North gable on north building of public school	72 43.7 east of north
Ball at top of courthouse tower	19 54.8 west of north
Base of cross on Christ Church	21 29.2 west of north
Rod at top of cupola on wooden church across street from Christ Church	24 47.6 west of north

About 186 feet distant is a north meridian post of marble 4 by 6 by 33 inches, projecting about 5 inches above the ground, with a hole in the top to mark the exact spot.

Covington, Newton County.—The station is in the northwest part of the Academy Spring Park, about three-fourths mile southeast from the town's center. It is 108 feet east from the center of the drive on the west side of the park and 153 feet west from the west side of the park pavilion. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Spire of Methodist Church (mark)	79 26.7 west of north
Upper east edge of town water standpipe	14 33.6 west of north
Lower part of shaft of W. W. Charles's windmill just above water tank	3 11.1 west of north

Crawfordville, Taliaferro County.—The station is in the eastern part of the grounds surrounding Liberty Hall, at one time the residence of Alexander H. Stephens and now owned by the Monumental Society. The grounds contain the Stephens monument and are about one-fourth mile north of the town's center. The station is 38.1 feet west of the boundary fence to the east, 98 feet southeast from the southeast corner of the porch of the Stephens resi-

GEORGIA—Continued.

dence, and 149.5 feet northeast from the northeast corner of the base of the Stephens monument. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground and having a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Base of spire of courthouse cupola (mark)	15	48.0	west of south
Southwest edge of corner stone of public schoolhouse	33	46.0	east of south
Wooden spire of a small church about 200 feet northeast	55	59.4	east of north

Dahlonega, Lumpkin County.—The station is near the north corner of the parade ground of the North Georgia Agricultural College, about one-fourth mile south of the town's center. It is 93.3 feet northwest from the northwest corner of a small wooden building used as the mining department, 50.3 feet southwest from the southwest corner of the fence surrounding the janitor's house, and 192.5 feet south from the north corner of the parade ground. It is marked by a limestone post 6 by 6 by 30 inches, projecting 1 inch above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Spire on cupola of public school (mark)	16	01.7	west of north
Spire of Baptist Church	13	21.4	east of north
Southwest gable on courthouse	6	03.7	west of north
Spire on cupola of main college building	77	47.8	west of north

The south meridian post is of granite 6 by 7 by 30 inches, projecting about 4 inches above the ground, with a brass plug set in the top. It is about 460 feet from the magnetic station.

Danielsville, Madison County.—The station is in front of the residence of Mr. Charles O'Kelly, in a small triangle formed by a road, the fence of Mr. O'Kelly's orchard and the fence of Mr. O'Kelly's front yard, about one-fourth mile northwest from the town's center. It is 59.4 feet northeast from the northeast fence of the orchard and 58.8 feet southeast from the southeast fence of the front yard. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 6 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Spire of Methodist Church (mark)	69	53.2	east of north
Lower south edge of smokestack on cotton gin	83	18.4	east of north
South gable point of Barnes Hotel	75	30.8	east of south
Top of central cupola of courthouse	50	28.1	east of south

Dawson, Terrell County.—The station is in the city cemetery, about one-half mile south of the county courthouse. It is on the north side of the cemetery, in the walk, 4.8 feet from the coping at the northeast corner of the McClelland lot. It is 63 feet east by north of the F. L. Horsley monument, 56.2 feet north by west of the C. C. Lewis monument, and 36.2 feet west by north of the J. W. Dismuke monument. The station is marked by a Bedford limestone post 6 by 7 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Spire on county courthouse	10	0.2	west of north
Spire of Baptist Church	3	17.5	east of north
Top of city water tank	5	32.8	east of north
Base of spire on cupola on the J. W. F. Lowrey residence	14	56.8	east of north

A marble post 4 by 6 by 24 inches was set 720.1 feet south of the magnetic station, in the main driveway, to mark the south end of a meridian line.

Dawsonville, Dawson County. The station is in the southern part of a field belonging to Mr. Henry Millholland, immediately across the road from and north of the cemetery. It is about 156 feet north from the northwest corner of the cemetery, and about 186 feet south from the fence surrounding the Millholland homestead and barn. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
North gable of Tucker's brick store (mark)	83	23.4	east of south
Upper southwest corner of jail, under eaves	81	29.9	east of south
Upper southwest corner on bricks of courthouse, under eaves	78	55.3	east of south
West gable of Col. Vanderhoff's house	69	59.9	east of south

Fayetteville, Fayette County.—The station is located on the west side of the public school grounds, at the south side of the village. It is 18 feet east of the inside edge of the sidewalk line and 110 feet west by north of the northwest corner of the school building. An elm tree bears south by east and is 27.4 feet from the station. The station is marked

GEORGIA—Continued.

by a Bedford limestone post 6 by 7 by 30 inches, which projects about 2 inches above the ground and has a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Spire on Methodist Church (mark)	45	39.9	east of north
Spire on county courthouse	7	33.5	east of north
Northwest corner of G. W. Dawset's residence	84	16.5	east of north
Spire on public-school building	60	5.0	east of south

A granite post 8 by 8 by 40 inches, with a cross on the top, is set 278 feet due north of the magnetic station.

Fitzgerald, Ben Hill County.—The station is in the northeastern part of the grounds surrounding the high school, about three-fourths of a mile southwest of the town's center. It is 170.3 feet northeast from the northeast corner of the school building, 249.2 feet northeast from the southeast corner of the school building, about 49 feet from the center of the road to the east, and about 54 feet from the center of the road to the north. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	°	′	
Top of cupola of J. E. Mercer's house (mark)	73	25.9	east of north
Rod at top of northwest corner of tower of Christian Church	82	51.7	east of north
Base of flagstaff on cupola of Lee Grant Hotel	31	45.2	east of north
Lower southeast corner of high-school building	37	19.0	west of south

A stake with a nail in the top was set about 300 feet due south from the magnetic station to mark the meridian line, and directions were left with the county surveyor for setting a stone in its place.

Forsyth, Monroe County.—The station is on a knoll about 1 mile northeast of the county courthouse and about a quarter of a mile back of the Bessie Tift College buildings. It is on the property recently purchased by Mr. Nally from Mr. Williamson, 375 feet north of the fence dividing Mr. Nally's property from that of the Bessie Tift College, 220.5 feet from a fence running along the road on the north side of the tract, 253 feet from a fence west and 492 feet from the edge of a thicket on the east side of the tract. It is approximately 1,200 feet west by south of the city pumping plant. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, projecting about 3 inches above ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire on county courthouse (mark)	51	46.6	west of south
Flag pole on Bessie Tift College	19	13.6	west of south
Top of water tank at Bessie Tift College	13	54.4	west of south
Spire on colored Baptist Church	52	0.7	west of south
Northwest edge of town water tank	55	26.7	west of south

A marble post 7 by 4 by 42 inches was set due south of the magnetic station at a distance of 373 feet and projects about 8 inches above the ground.

Georgetown, Quitman County.—The station is near the property belonging to Mrs. M. G. Morris, about one-half mile east of the county courthouse. It is south of a piece of woodland which extends from the street line to the public school building, being 73.9 feet west of a fence which incloses Mrs. Morris's cotton field. It is 64 feet from an oak tree bearing about west by north, 59 feet from a second oak tree bearing about northwest and 74.3 feet from a third oak tree which bears a little east of north. The station is marked by a Bedford limestone post 6 by 7 by 30 inches, projecting about 1 inch above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Spire of Methodist Church (mark)	85	43.7	west of south
Northwest corner of Mrs. Morris's residence	71	47.6	east of north
Southwest corner of barn on county pauper farm	74	21.9	east of south

A granite post 6 by 6 by 24 inches was set 392.7 feet north of the magnetic station to mark the north end of a meridian line. This stone is on the school grounds, 148 feet southwest of the southwest corner of the school building.

Gray, Jones County.—The station is about one-quarter of a mile southwest from the center of the village, on the grounds of the public school. It is 177.7 feet east of the southeast corner of the school building, 273 feet south by west from the southwest corner of the public library building, 97.3 feet and 151 feet, respectively, from a fence south and a fence southeast. The station is marked by a Bedford limestone post 7 by 7 by 30 inches, projecting about 1 inch above the ground and having a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Northwest corner of courthouse tower (mark)	51	17.6	east of north
Spire on county courthouse	52	01.0	east of north
Gable on residence of T. H. Trice	75	12.4	east of south
North edge of chimney of E. T. Dumas's house	73	32.6	west of north

A concrete post 6 by 6 by 42 inches, projecting about 9 inches above the ground, was set 300 feet due north of the magnetic station.

GEORGIA—Continued.

Greensboro, Green County.—The station is just outside the west gate at the southwest corner of the cemetery, about one-half mile north of the town's center. It is 109.4 feet west from the fence on the west border of the cemetery, 111.3 feet a little north of west from the south gatepost of the above west gate, and about 38 feet north from the center of the road leading to this gate. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 8 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Spire of Methodist Church (mark)	20	44.6	west of south
Base of cross on Episcopal Church	0	24.8	east of south
Base of flagstaff on cotton gin	45	20.3	west of south

A granite post 5 by 7 by 30 inches, 600 feet from the magnetic station, 21.9 feet west of the fence on the east side of the main road passing the Episcopal Church, and 10 feet north from the nearest point on the trunk of a large double pine tree, marks the south end of the meridian line.

Griffin, Spaulding County.—The station is on the north side of the city cemetery, about three-quarters of a mile southeast of the center of the city. It is 99 feet south of the fence on the north side of the cemetery, on the west side of the walk between lots Nos. 241 and 262. It is 3 feet east of the brick coping around O. Moore's lot (No. 241) and 26.6 feet south by west from the Spurlock monument on lot No. 262. An oak tree 57 feet from the station bears east by south, and the Barrow monument at a distance of 49.8 feet bears about southeast. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 1 inch above the ground and having embedded in its top the usual bronze magnetic station mark. The following true bearings were determined:

	°	′	
Spire of old courthouse (mark)	46	32.4	west of north
Northwest corner of Griffin Oil Company's mill tower	35	07.6	east of north
South edge of chimney of Walker Oil Company's mill	84	10.8	east of south
North edge of Daniel marble monument	51	21.9	west of south

A cement stone 4½ by 7 by 30 inches, flush with the ground, was set 469.3 feet due south of the magnetic station, in the middle of the walk between lots Nos. 250 and 253. It is 25.3 feet northwest of the Heard monument and 43.5 feet south by east from the Kincaid vault.

Hazelhurst, Jeff Davis County.—The station is in the southwestern part of the grounds surrounding the grade school, about one-quarter mile a little north of east of the town's center. It is 130.7 feet from the fence to the northwest, and 203.7 feet southwest from the southeast corner of the school building. It is marked by a cement post 7 by 9 by 24 inches, projecting about 3 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	°	′	
Base of spire on Presbyterian Church (mark)	12	16.7	west of north
North gable of Baptist Church	30	17.8	west of north
Top of water tank	89	32.8	west of north
Top of cupola of Dr. Girtman's house	57	52.4	west of north

Irwinton, Wilkinson County.—The station is in the southern part of the public school grounds, about one-half mile northeast of the town's center. It is 58.6 feet northeast of the fence bordering the grounds on the southwest, and 108.5 feet east of the east corner of the school building. It is marked by a marble post, 5 by 5 by 33 inches, projecting about 3 inches above the ground, and lettered U. S., 1911. The following true bearings were determined:

	°	′	
Spire of Union Church (mark)	4	27.5	west of south
Northwest gable of Nesbit's house	23	57.4	west of south
Southeast corner of Miss Ellen King's house, under eaves	63	30.0	east of south

Jasper, Pickens County.—The station is in the southwest corner of the grounds surrounding the McHann Hotel, about one-fourth of a mile northeast of the town's center. It is 63.5 feet northeast from the fence bordering the grounds on the southwest, 59.3 feet southeast from the fence on the northwest, and about 223 feet west of the southwest corner of the McHann Hotel. The following true bearings were determined:

	°	′	
North gable on county courthouse (mark)	85	23.6	west of north
Spire on cupola of schoolhouse	60	12.7	west of south
Lower southeast corner of railing surrounding roof of Mr. Carter Yates's house	38	38.8	east of north
Lower northeast corner of a brick building on the main street	70	02.0	west of south

Jonesboro, Clayton County.—The station is located in the Citizen's (Johnson's) Cemetery, about 1 mile northeast of the center of the village. It is near the southeast corner of the cemetery, 6.3 feet west of the west edge of Johnson Street, 6.5 feet east of the coping around W. H. Camp's lot, and 36.5 feet north of the north edge of South Avenue. It is 86.5 feet south of the coping of Mayo's lot and 38.3 feet from the W. H. Camp monument. An elm tree bearing north by west is 85.7 feet and a cedar tree bearing southeast is 50.0 feet from the station. The station is marked by a Bedford

GEORGIA—Continued.

limestone post 6 by 6 by 28 inches, projecting about 2 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′	
Spire on county courthouse (mark)	30 20.8	west of south
Spire of colored Methodist Church	34 16.7	west of south
Top of building in Confederate Soldiers' Cemetery	85 37.5	west of north
Top of W. H. Morrow monument	86 07.8	west of north

A granite post 10 by 10 by 24 inches, projecting about 6 inches above the ground, has been set 402 feet due south of the magnetic station. A cross on its face indicates the meridian line.

Knoxville, Crawford County.—The station is on the Methodist Church grounds, on the south side of the village. The Methodist Church is 87.2 feet west of it, the public school building (northeast corner) 296.5 feet south by west, a fence 77.5 feet east and a fence 80.0 feet north. Two large oak trees, one bearing nearly south and the other south by west, are 52.0 feet and 96 feet, respectively, from the station. The station is marked by a Bedford limestone post 6 by 7 by 30 inches, projecting about 1 inch above the ground and having a bronze magnetic station marker in the top. The following true bearings were determined:

	° ′	
Top point on roof of courthouse (mark)	7 59.8	east of north
Southeast corner of J. Hancock's residence	25 31.0	east of north
South edge of chimney on Frank Mathews's farmhouse	77 34.8	east of south

A granite stone, 4 by 18 by 24 inches, was set 403.5 feet due south of the magnetic station. It projects about 3 inches above the ground, and has a cross on its face to designate the exact position of the meridian line.

Lagrange, Troup County.—The station of 1905 was reoccupied. It is in the southeastern part of the cemetery in the northeastern part of the city. It is 66.3 feet from the east fence of the cemetery and 56.8 feet from the south fence, 153.2 feet from the nearest corner of the Dillard monument, and 76.4 feet from a blazed maple tree just outside of the cemetery.

As the old station was found to be no longer suitable for magnetic observations, a new station was established in the eastern part of the grounds surrounding the Southern Female College, about one-fourth mile north of the town's center. It is 159 feet east from the southeast corner of the south college building, 10 feet west from the picket fence on the east side of the college grounds, and 88.6 feet northeast from the northeast corner of the brick foundation of a burned-out building. It is marked by a marble post 7 by 7 by 34 inches, projecting about 10 inches above the ground. The following true bearings were determined:

	° ′	
East gable point of Dr. Joseph Lane's residence (mark)	16 32.8	west of north
Lower southwest corner of north college building	61 42.7	west of north
Lower northwest corner of Dr. Ridley's residence	4 37.1	east of north

A north meridian granite post 7 by 7 by 36 inches is 194 feet distant, and 129.9 feet a little north of east from the northeast corner of the front porch of the north college building. This post is about 11 inches above ground and has a small hole in the top to mark the exact line.

Leesburg, Lee County.—The station is in the southeastern part of the grounds surrounding the public school, about one-fourth mile east of the town's center. It is 186 feet east from the southeast corner of the school building, 118 feet west from the center of the trunk of a water oak tree about 3 feet in diameter, and 70 feet northeast from the center of the trunk of a water oak tree about 2 feet in diameter. The station is marked by a limestone post 4 by 6 by 28 inches, projecting about 2½ inches above the ground and lettered U. S. C. & G. S., 1911, with a hole in the top. The following true bearings were determined:

	° ′	
Base of wooden spire on Methodist Church (mark)	86 14.2	west of south
Lower southeast corner of Methodist Church	85 29.8	west of south
Base of wooden rod on small cupola at northeast corner of jail	15 50.7	east of south
Ornamental block at top of west gable of E. B. Lee's house	67 48.2	east of south

Lexington, Oglethorpe County.—The station is in the Baptist Cemetery, about three-quarters of a mile west by north from the center of the village It is 18 feet from the north edge of the cemetery grounds, 234 feet from a road running beyond the east side of the grounds, 390 feet from the main traveled road on the south side, and 300 feet northwest of the Young monument in the cemetery. The station is marked by a Bedford stone 7 by 7 by 30 inches, projecting about 1 inch above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′	
Spire on Methodist Church (mark)	28 35.6	east of south
Spire on Baptist Church	31 02.8	east of south
Spire on tower of public school building	37 20.3	east of south
Top of water tank at Crawford Oil Co.'s mill	72 36.5	west of north
Spire on colored Baptist Church at Crawford	76 58.0	west of north

A granite post 6 by 6 by 48 inches, projecting about 1 foot above the ground, was set 440 feet due south of the magnetic station.

GEORGIA—Continued.

Louisville, Jefferson County.—The station of 1905 was reoccupied. It is in the southern part of the high-school grounds, about one-half mile northwest of the town's center. It is 123 feet east from the eastern corner of the high-school building, and 97.1 feet a little east of south from the southeast corner of the porch of the primary school. It is marked by a limestone post 7 by 7 by 30 inches sunk flush with the ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1911:

	° ′
Southwest gable of W. L. Phillips's house (mark)	62 49.2 east of north
Base of spire on Methodist Church	38 37.6 east of south
Northeast gable on J. W. Clark's house	53 43.4 west of south

The north meridian post is of granite with a triangular cross-section of sides 5 and 7 inches. It is about 263 feet from the magnetic station, and projects about 7 inches above the ground, with a line cut in the top of the south corner to mark the meridian line.

Lumpkin, Stewart County.—The station is in the northern part of the grounds surrounding the high school, about one-half mile northwest of the town's center. It is 60 feet from the north fence, 164.8 feet a little north of west from the center of a lone oak tree, about 3 feet in diameter, and 152 feet northwest from the center of a second lone oak tree about 2½ feet in diameter. It is marked by a limestone post 4 by 6 by 30 inches, projecting about 3 inches above the ground and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′
Upper south edge of town water tank (mark)	50 17.8 east of south
Southwest edge of school building, under eaves	12 01.6 east of south

The south meridian post is a rough field stone 4 by 8 inches at the top, 12 by 12 at the bottom, and 14 inches long. It projects about 2 inches above ground and has a small hole in the top. It is about 96 feet west of the west steps of the school building, about 10 feet north of a china-berry tree, and about 520 feet from the magnetic station.

McRae, Telfair County.—The station is in the northwestern corner of the grounds surrounding the South Georgia College, about three-fourths of a mile northwest of the town's center. It is 71 feet from the fence to the northeast, 80.4 feet from the fence to the northwest, and 184.8 feet northwest from the northwest corner of the main college building. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′
Top of courthouse dome (mark)	81 28.2 east of south
Top of a belfry in McRae	74 47.8 east of south
Top of Presbyterian Church steeple in Helena	54 09.6 west of north
Top of cupola of Willard Hotel	25 45.3 west of north
South gable point of Methodist Church in Helena	25 40.2 west of north

Milledgeville, Baldwin County. The station of 1908 was reoccupied. It is upon the old capitol grounds, now the grounds of the Georgia Military College. It is 18 feet south of an elm tree, 198 feet southwest of the southwest corner of the college building, and 174 feet west of a board fence. It is marked by a limestone post, 6 by 6 by 30 inches, projecting about 4 inches above the ground and lettered U. S. C. & G. S., 1908. The following true bearings were determined in 1908:

	° ′
Spire on Methodist Episcopal Church (mark)	63 24.2 west of south
Northwest corner of college building	8 04.3 east of north
Dome on State insane asylum	5 31.3 east of south

Millen, Jenkins County.—The station is in the northwestern part of the grounds surrounding the grade school, about one-fourth mile northwest of the courthouse. It is 211.4 feet a little east of north from the northwest corner of the school building and 101 feet northwest from the northwest corner of the board fence inclosing a lot east and northeast of the school building. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	° ′
Spire of old Methodist Church (mark)	64 39.2 east of south
Center of top of courthouse dome	59 58.9 east of south
Top of steeple of new Baptist Church	38 40.5 east of south
Lower northwest corner of new Methodist Church	42 48.0 east of north
Spire of a small wooden church	32 06.4 east of north

A granite post 5 by 7 by 36 inches, projecting about 10 inches above the ground, with a hole in the top, 168 feet from the magnetic station, marks the south end of a meridian line.

GEORGIA—Continued.

Monroe, Walton County.—The station is in the northwestern corner of a pasture belonging to Mr. A. C. Stone, judge of the city court, immediately back of Mr. Stone's house and garden and about one-fourth mile east of the town's center. It is 49.2 feet south from the north fence of the pasture, and 80.7 feet east of the west fence. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Base of spire of courthouse cupola (mark)	82	26.3	west of south
Upper northwest corner of jail, under eaves	30	37.4	west of south
Base of flagstaff on public schoolhouse	42	41.2	east of south

Monticello, Jasper County.—The station is in the West View Cemetery, about one-half mile northwest of the center of the village. It is near the south edge of the proposed Main Street, at the intersection of Seventh Street. It is 182.5 feet west of the monument on the lot of the Fish family, 127 feet southwest from the Benton monument, and 112.5 feet from the southwest side of Park Avenue. The station is marked by a Bedford stone 7 by 7 by 30 inches, projecting about 3 inches above the ground with a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Spire of public-school building (mark)	76	01.8	east of south
Spire on Methodist Church	35	27.8	east of south
East edge of town water tank	0	05.8	west of south
Southwest corner of W. J. Phillip's house	84	19.8	east of south

A marble post 12 by 12 by 48 inches, projecting about 10 inches above the ground, was set 328.5 feet due south of the magnetic station.

Morgan, Calhoun County.—The station is in the southern part of the town square, across the road from the county courthouse, and near the town's center. It is 148.5 feet a little south of east from the southeast corner of the courthouse, 76 feet southeast from the center of the trunk of a post oak tree, about 2½ feet in diameter and 43.9 feet a little south of west from the center of the trunk of a water-oak tree, about 1 foot in diameter. It is marked by a limestone post 4 by 6 by 30 inches, projecting about 5 inches above the ground, and lettered U. S. C. & G. S., 1911, with a hole in the center. The following true bearings were determined:

	°	′	
Top of cupola on African M. E. Church (mark)	39	26.9	west of north
Lower northeast corner of Dr. K. McK. Regan's office	42	09.8	west of north
North gable of gin and gristmill	72	41.4	west of south

A stone set 267 feet north marks the north end of a meridian line.

Nashville, Berrien County.—The station is in the southwestern part of the city ground surrounding the electric-light plant and pumping station, about one-half mile west of the town's center. It is 173 feet south from the southeast corner of the electric-light station, 74.2 feet northwest from northwest corner of the fence surrounding G. B. Case's house across the street, and about 261 feet southwest from the nearest support of the town water tank. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2½ inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Top of cupola on porch of Mr. Sutton's house (mark)	84	18.8	east of south
Base of flagstaff on cupola of schoolhouse	83	30.4	east of north
Center of XII of clock of county courthouse	87	57.0	east of south
Center of top of a small wooden cupola	23	18.5	east of south

Perry, Houston County.—The station is in the city cemetery, about one-fourth of a mile southwest of the center of the village. It is 75.7 feet from the south boundary fence of the cemetery and 101 feet from the Mary L. Gamble marble monument. It is 318.5 feet from the west rail of the Central of Georgia Railroad track, and 153.5 feet northeast of the Lieut. Wm. Holmes marble monument. The station is marked by a Bedford limestone post, 6 by 7 by 30 inches, projecting about 2 inches above the ground and having a bronze magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Spire on Baptist Church (mark)	53	50.8	east of north
Top of town water tank	45	56.6	east of north
Spire of colored Union Baptist Church	5	48.4	east of north
Southwest corner of S. F. Dasher's residence	43	13.5	east of south

A granite post, 8 by 13 by 42 inches, projecting about 10 inches above the ground, was set 332.2 feet due north of the magnetic station to mark a meridian line. A cross on its face indicates the exact line.

Preston, Webster County.—The station is in the northeastern part of the grounds surrounding the public school, across the road from the schoolhouse, and about one-fourth mile east of the town's center. It is 171.3 feet northeast from the northeast corner of the schoolhouse, and 132 feet southwest from the southwest corner of the Steven's monument

GEORGIA—Continued.

in the cemetery. It is marked by the neck of a dark glass bottle, buried about 8 inches under the ground. The following true bearings were determined:

	°	′	
Spire of Baptist Church (mark)	78	24.6	west of north
Spire of Methodist Church	80	32.4	west of north
Upper southwest corner of jail under eaves	76	58.9	west of north
Top of schoolhouse cupola	22	23.4	west of south

The north meridian post is of limestone 4 by 6 by 30 inches, projecting about 4 inches above ground. It is 13 feet north of west from the magnetic station in line with the mark, and is lettered U. S. C. & G. S., 1911, with a hole in the top. The south meridian post is of cement 6 by 6 by 33 inches, projecting about 7 inches above the ground, with a hole in the top. It is about 210 feet from the north post.

Quitman, Brooks County.—The station is in the southwestern corner of the Fair Grounds, about one-half mile south of the town's center. It is about 53 feet east of the fence bounding the grounds on the west and about 85 feet north of the fence bounding the grounds on the south. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Top of town's water tank (mark)	17	42.5	west of north
Spire of a small wooden church	59	36.7	west of north
Top of steeple of Baptist Church	13	39.6	west of north
Top of cotton mill water tank	26	12.6	east of north

Sparta, Hancock County.—The station is in the northwest part of the farm owned by Mr. W. E. Wiley, county clerk, in front of the farmhouse and about 1¼ miles northeast of the town's center. It is 128.3 feet southwest from the southwest corner of the farmhouse, and 146.9 feet southwest from the northwest corner of the farmhouse. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, and having a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
North steeple of Colored Baptist Church (mark)	42	38.7	west of south
Top of town water tank	69	50.5	west of north
South steeple of Colored Baptist Church	42	07.4	west of south

Sylvester, Worth County.—The station is in the southeastern part of the grounds surrounding the grade school, about one-half mile northeast of the town's center. It is 268.6 feet southeast from the southeast corner of the school building and 103.8 feet west of the wooden fence across the street to the east. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Top of town water tank (mark)	33	21.8	west of south
Top of cupola of county courthouse	37	19.0	west of south
Top of cupola on dome of Methodist Episcopal Church	47	17.4	west of south
Top of steeple of Presbyterian Church	27	59.6	west of south
Top of cupola on a dwelling	15	25.4	west of south

Talbotton, Talbot County.—The station is in the city cemetery, about one-half mile northeast of the county courthouse. It is 78.2 feet east of the east gatepost at the main entrance to the cemetery, on the walk between the McDowell and Waterman lots. It is 3 feet from the coping of the McDowell lot, 6.8 feet from that of the Waterman lot, and 8.1 feet from that of the Bethune lot. It is 23.4 feet northeast of the John T. Waterman granite monument and 13.8 feet southeast of the Nancy P. McDowell marble monument. The station is marked by a Bedford limestone post, projecting about 3 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire on courthouse (mark)	57	52.5	west of north
Top of tower on Methodist Church building	86	33.0	west of north
Southwest corner of Edgar Smith's residence	12	27.9	west of north

A granite post, 12 by 5 by 42 inches and projecting about 10 inches above the ground, was set 298 feet north of the magnetic station, a cross on its top indicating the position of the true meridian.

Thomson, Duffield County.—The station is east and northeast of the residences of Mr. E. S. Albert and Mr. Jordan Shank, respectively, in the northeast corner of a field owned by Mr. P. S. Knox, about 1½ miles southeast of the town's center. It is 54 feet southwest from the boundary line on the northeast and 51 feet southeast from the boundary line

GEORGIA—Continued.

on the northwest. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Northeast gable of Forest Watson house (mark)	83 02.2 west of south
Top of a green water tank	79 10.0 west of south
Top of steeple on small wooden church, only one in sight	47 51.6 west of north
Upper northeast corner of post-office building, under eaves	77 47.9 west of north

Tifton, Tift County.—The station is in the northwest corner of the grounds surrounding the city pumping station, across the street from the schoolhouse and about three-fourths mile northwest from the town's center. It is 164 feet northwest from the northwest corner of the northwest brick support for the water tank at the pumping station and 122.3 feet west from the northwest corner of the baseball grandstand. It is also about 30 feet from the property line to the north and about 28 feet from the property line to the west. It is marked by a cement post 8 by 9 by 24 inches, projecting about 2 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Spire of Baptist Church (mark)	74 22.4 east of south
Upper southwest corner of schoolhouse under eaves	40 02.6 east of south
Top of cupola on Fulwood house	43 15.6 east of north
East gable of Mr. Carson's house	8 37.4 east of north

Toccoa, Stephens County.—The station is near the central part of the county farm, about 1¾ miles northeast of the town's center and about 400 feet northeast from the county farmhouse. It is 106.8 feet south in the meridian line from the fence on the southwest side of the pasture and 119.2 feet northeast from the northeast corner of the feed house. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
Northwest corner of top of chimney of county farmhouse (mark)	30 03.8 west of south
Upper northeast corner of a box car, fixed on supports as a cabin	25 14.5 west of south
Point of northeast gable of county farm barn	20 57.2 east of south

The north meridian post is of granite, about 253 feet distant in the pasture. It is 5 by 7 by 36 inches, projecting about 10 inches above the ground, with a hole in the top to mark the exact line.

Vienna, Dooly County.—The station is on the public school grounds, about one-fourth mile southeast of the courthouse. It is 135.6 feet south by west from the southwest corner of the school building, 13.4 feet from the edge of a cotton field on the south side of the grounds, and 141 feet from the fence on the east side of the grounds. It is 87.1 feet and 64.1 feet, respectively, from two oak trees, one bearing northwest and the other west. The station is marked by a Bedford limestone post, 6 by 7 by 30 inches, projecting about 3 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	° ′
Southwest corner of J. Lashley's farm house	32 18.7 east of south
Spire on public school building	14 33.2 east of north
Southeast corner of N. C. Renfral's residence	68 17.3 east of north
Southeast corner of E. C. Taylor's residence	84 24.0 east of north

A granite post 5 by 15 by 36 inches was set 285 feet due north of the magnetic station. It projects about 10 inches above ground and has a cross cut on its face.

Watkinsville, Oconee County.—The station is on the grounds of the Oconee high school, about a quarter of a mile northeast of the center of the village. It is near the north end of the grounds, 210.3 feet from the northeast corner of the school building. It is 40.1 feet and 85.6 feet south and southwest, respectively, from two large oak trees, and 76 feet from the middle of the road which runs along the north side of the grounds. The station is marked by a Bedford limestone post, 7 by 7 by 30 inches, projecting about one-half inch above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Spire on Baptist Church (mark)	4 59.7 east of south
Spire on A. W. Ashford's house	21 33.0 west of south
North edge of spire on Methodist Church	26 47.6 west of south
Point on central gable of courthouse	59 17.7 west of south
Spire on colored Baptist Church	70 48.0 west of north

A granite stone post, 12 by 12 by 36 inches, was set 326.1 feet due south of the magnetic station.

GEORGIA—Continued.

Zebulon, Pike County.—The station is in the Methodist Cemetery, on the south side of the village. It is 93 feet south of the Methodist Church, 11.9 feet east by north from the James F. Harrison monument, and 28.5 feet north by west from the Lucy W. Smith monument. Two oak trees, bearing northeast and east by north, are respectively 46.7 feet and 25.6 feet from the station. The station is marked by a Bedford limestone post 6 by 7 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Point on head of figure on courthouse (mark)	10 26.3 west of north
Southeast corner of C. P. Banks' residence	60 48.7 east of north
Southwest corner of colored I. O. O. F. Hall	8 28.6 east of south

A granite stone, 5 by 7 by 24 inches, was set 390.5 feet due south of the magnetic station, having a cross on its end indicating the exact position of the meridian line.

ILLINOIS.

Belvidere, Boone County.—Observations were made in the Boone County Fair Grounds, about 1½ miles west of the post office. The station is in the southwestern part of the infield of the race track, 99 feet from the fence inside the track, 227 feet south by west from the halfway post. It is in line with the south end of a long unpainted shed west of the track. It is also in line with a windmill about one-fourth mile away and a point about 35 feet west of the east end of the shed farthest to the southwest. The station is marked by a post of Bedford stone, 6 by 6 by 24 inches, projecting about 3 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′
Windmill, center of shaft near top (mark)	13 18.3 west of south
North gable of grandstand	51 10.7 east of south

Cairo, Alexander County.—The station of 1908 was rececocupied. It is on the new city levee, between the Illinois Central and the Mobile & Ohio Railroad tracks, west of the west end of West Thirty-third Street. This levee extends northeast from an iron post which was set by the river survey as a bench mark, and which is 250 feet southeast of the Mobile & Ohio signal station. The magnetic station is about 705 feet northeast along the city levee from this bench mark and 12 feet north of the center of the levee on the slope. The station is marked by a Bedford limestone post, 5 by 5 by 30 inches, projecting 6 inches above the ground and lettered U. S. C. & G. S., 1908. The following true bearings were determined in 1908:

	° ′
Steeple of St. Joseph's Catholic Church (mark)	64 25.8 east of south
A cupola	65 06. 8 east of south
Base of flagstaff on Redman & Magee Co. elevator	15 09.1 east of north
Bench mark of river survey	52 30.7 west of south

Hennepin, Putnam County.—Observations were made in the southwestern part of the Riverside Cemetery, about one-half mile south of the courthouse. The station is in the intersection of the pathways north and west of the Childs lot. It is 79 feet north of the south fence of the cemetery, about 71 feet east from the east face of the Mullin monument, and 4.8 feet northwest of the northwest corner of the concrete border of the Childs lot. It is marked by a marble post, 6 by 6 by 20 inches, set flush with the ground, with a brass station marker in the top. The following true bearings were determined:

	° ′
Gable of white frame house (mark)	4 38.4 east of north
Gable of red barn	25 14.0 east of north
East gable of unpainted barn	39 35.6 west of north
Center of base of pole at top of water tank	14 05.4 west of north

Jacksonville, Morgan County.—Observations were made in the grounds of the Illinois State Hospital for the Insane, about three-fourths of a mile south of the public square at a point in the northwest part of the lawn. The station is about 390 feet south of the north fence along Morton Avenue, 134 feet east of the fence west of the lawn and separating it from the farm of the insane hospital. It is about 270 feet north-northwest from the northwest corner of the most northwestern building on the grounds, and is in line with the center of South Church Street. It is 54 feet south-southwest of a hard maple tree 15 inches in diameter, 94 feet northwest of a hard maple tree 24 inches in diameter, and 149 feet north by east from an elm tree 12 inches in diameter. It is marked by a Bedford stone 6 by 6 by 20 inches, with a magnetic station marker in its top and sunk level with the ground. The following true bearings were determined:

	° ′
Gable of brick barn (mark)	30 08.9 west of south
Northeast corner of brickwork of west row of asylum buildings	35 16.4 east of south
South gable of 1½-story frame house across Morton Street	39 51.3 west of north
Nearest corner of north post of east entrance to grounds	55 33.2 east of south

ILLINOIS—Continued.

Morris, Grundy County.—Observations were made inside the ring of the race-track grounds belonging to Mr. H. B. Goold, about 1¼ miles northwest of the courthouse. The station is 112 feet from the inside of the track and 235 feet north of the south fence of the grounds. It is in line with the tower of the public school and the peak of a pile of coal-mine waste, about 8 feet high, in the field south of the grounds. It is marked by a concrete post 8 by 8 by 24 inches, projecting about 1 inch above the ground, with a brass station marker cemented in the top. The following true bearings were determined:

	°	′	
Center of cross of church steeple (mark)	27	17.3	east of south
West gable of public school tower	41	38.0	east of south
Northeast gable of barn	73	21.9	west of north
Cupola on large brick house	80	12.6	west of north

Pekin, Tazewell County.—Observations were made in Lakeside Cemetery, about 1½ miles north of the courthouse. The station is in the new part of the cemetery, about 500 feet west from the main entrance, 285 feet east of the west fence, and about 130 feet northwest of the northwest corner of the memorial chapel. It is in a vacant fractional lot at the southwest corner of block 7 of the cemetery, west of lots 144 and 145 and south of lot 184 and 7 feet northeast of the edge of the road. It is marked by a granite post 5 by 5 by 22 inches, with the regular magnetic station marker set in its top and sunk level with the ground. The following true bearings were determined:

	°	′	
Steeple of German Reformed Church (mark)	10	33.6	west of south
Methodist Church steeple	3	30.8	east of south
Cupola of barn	80	10.6	east of south
Peak of semaphore frame	30	16.5	west of north
West edge of top of chimney at electric-light plant	17	14.1	west of south

Rushville, Schuyler County.—The station is inside the race track at the fair grounds, about three-fourths mile north of the square in the center of the town. It is 150 feet north of the judges' stand, 148 feet northeast of a well, and 113 feet west of a row of hitching posts. It is marked by a limestone post 6 by 6 by 30 inches, projecting 4 inches above ground, with a station marker in the top. The following true bearings were determined:

	°	′	
Christian Church spire (mark)	26	39.4	west of south
Spire of Floral Hall	52	13.2	west of south
Cupola of barn belonging to James Nall	27	58.2	west of north

Springfield, Sangamon County.—The station of 1907 was reoccupied. It is about 400 feet south-southeast of the center of Lincoln Monument, about 1½ miles from the town's center. It is 90 feet north from an elm tree, 1 foot in diameter, at the edge of the lawn on which the station is located. It is 205 feet southeast from a forked elm 2 feet in diameter. It is 90 feet southwest from the most southeastern of three small white birch trees 3 inches in diameter and 116 feet south of the most northwestern one of these birch trees. It is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the surface of the ground and lettered U. S. C. & G. S., 1907. The following true bearings were determined:

	°	′	
Westernmost edge of masonry of base of Lincoln Monument at level of platform (mark)	24	19.5	west of north
Tip of east ear of horse on Cavalry group on monument	16	01.2	west of north
Tip of spear on Infantry group	20	02.8	west of north

Virginia, Cass County.—Observations were made in a playground belonging to the high school, located north of the high-school building and about one-half mile southwest of the courthouse. The station is in the western part of the grounds, about 300 feet northwest of the northwest corner of the high-school building, 93 feet east of the west fence of the grounds, 208 feet south of the north fence, and 124 feet north-northeast of an elm tree 2 feet in diameter, which is the most western tree of the most northern row of trees in the grounds. The station is in line with the northwest corner of the grounds and the south gable of a red barn about 700 feet away. It is marked by a marble post 6 by 6 by 20 inches, set flush with the ground and having a magnetic station marker in the top. The following true bearings were determined:

	°	′	
South gable of gray 2-story frame house (mark)	9	41.3	east of north
South gable of red barn, nearly in line with house	10	56.5	east of north
South gable of small unpainted barn	54	59.5	east of north
Northeast corner of brickwork of high-school building	14	03.0	east of south

ILLINOIS—Continued.

Wheaton, Dupage County.—The station is inside the ring of the race track on the grounds of the Chicago Driving Club, about 1 mile north of the courthouse. The point is 122 feet from the fence inside the ring. It is in line with the northwest corner of a small yellow barn, and the southeast corner of a two-story frame house about 300 feet beyond; the northeast corner of the grand stand and the center of a water tank about 200 feet beyond; the center of the judges' stand and the chimney of the clubhouse, about 200 feet beyond. The station is marked by a Bedford stone 4 by 7 by 30 inches, projecting 6 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Water tank 1 mile distant (mark)	81	37.4	east of south
North gable of frame house	58	52.4	west of south
South gable of frame house on hill	56	34.8	west of north
Pole on water tank (beyond grand stand)	27	13.7	west of north

INDIANA.

Cannelton, Perry County.—The station is in an open space in a field, near the reservoir, and about one-third mile northeast from the center of town. It is about 125 feet north-northeast of the edge of the water in the reservoir on the up-hill side, about 110 feet downhill from a barbed wire fence near the ridge of the hill, and about 120 feet from a small masonry structure being built for the storage of dynamite. It is marked by a 2-foot length of 3-inch tile pipe, set with its bell end upward and having the brass magnetic station marker cemented in. Its face is about 3 inches above the ground. The following true bearings were determined:

	°	′	
Nearest church steeple across the Ohio River (mark)	33	11.3	west of south
Gable of whitewashed barn across the Ohio River	81	16.3	west of north

Knox, Starke County.—Observations were made on a ridge in the eastern part of the Oak Park Cemetery, about 1½ miles south of the courthouse. The station is about 250 feet south-southeast of the tool house, at the middle of a pathway running north and south. It is 130 feet north of the south fence of the cemetery, 31 feet south of the southwest corner of the base of the Sloan monument, and 30.5 feet southeast of the southeast corner of the Giles monument. It is marked by a concrete post 6 by 6 by 24 inches, sunk level with the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Highest point of courthouse tower (mark)	7	57.5	east of north
West gable of small barn	69	41.7	east of north
East gable of small yellow house	75	26.6	west of south
Church tower, just west of courthouse	6	49.2	east of north
South gable of small white frame house	64	08.1	east of south

Lagrange, Lagrange County.—The station is in the northeastern part of the cemetery, about 1 mile south of the courthouse. It is about 180 feet west of the east fence of the cemetery and about 110 feet south of the north fence. It is in the pathway south of the Hays lot, 10 feet south of the southwest corner of the base of the Hays monument, 20 feet northwest of the northwest corner of the Hoff monument, and 34 feet north of the northeast corner of the base of the Ferrall monument. It is marked by a Bedford limestone post 6 by 6 by 26 inches, sunk level with the ground, with the brass station marker in the top. The following true bearings were determined:

	°	′	
Rod on center of courthouse tower (mark)	4	54.8	west of north
Methodist Church steeple	11	07.0	west of north
East gable of large red barn	65	02.7	west of north

Logansport, Cass County.—The station of 1907 was reoccupied. It is within the Spencer Park racing track, about 2½ miles east of the courthouse. It is in the southern part of the infield, about 175 feet southwest of a large walnut tree and about 95 feet east-southeast of another large tree. It is marked by a Bedford stone 5 by 6 inches, projecting 2 inches above the ground, and lettered U. S. C. & G. S., 1907. The following true bearings were determined:

	°	′	
East cupola of large red barn (mark)	40	29.1	west of north
Rod on judges' stand	52	42.5	west of north
West gable of baseball grand stand	15	22.2	west of north
Nearest edge of white chimney at center of small house	21	11.8	east of north

Marion, Grant County.—Observations were made in the eastern part of the grounds of the Marion Country Club, about 2½ miles north of the courthouse. The station is near a slight bend in the rail fence east of the grounds and near the highest point in the grounds. It is about 35 feet from the fence, 174 feet southward from an old apple tree just

INDIANA—Continued.

inside the fence, 110 feet northward from a walnut tree just outside the fence, and about 2 feet east of the line joining the two trees. It is marked by a Bedford stone post 4 by 4 by 28 inches, projecting about 6 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Peak of water tank on Country Club grounds (mark)	26	35.8	west of south
Near gable of small white frame house	52	33.1	west of south
Northeast corner of north portico of clubhouse	61	51.5	west of south
Dormer window of white house on hill	25	16.7	west of north
North gable of large house on hill	13	48.3	west of south

Monticello, White County.—Observations were made in the northwestern part of the central circle of the I. O. O. F. Cemetery, about 1½ miles east of the courthouse. The station is 9 feet from the edge of the circle, 43 feet south of the southwest corner of the base of the Reynolds monument, 56.5 feet southwest of the southwest corner of the base of the Van Voorst monument, and 92 feet west of the northwest corner of the base of the Stephan monument. It is marked by a post of Bedford limestone, 6 by 6 by 20 inches, set flush with the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
North gable of unpainted barn (mark)	33	03.4	east of south
North gable of large red barn near windmill	46	02.5	east of south
North gable of small barn	50	10.8	east of south
North gable of white house	37	26.8	west of south

Muncie, Delaware County.—The station is in a field belonging to the Ball estate, about 1 mile north of the courthouse, west of Walnut Street and south of the river. It is about 700 feet west southwest of the gate to the field, and about 140 feet from the top of the river bank. It is in line with the northeast corner of a gray barn just west of Walnut Street and the southeast corner of a brick schoolhouse, one square east of Walnut Street. It is also nearly in line with the east side of an elevated red tank at the electric-light plant and the northeast corner of the Wyser office building beyond the courthouse. The station is marked by a Bedford stone post, 5 by 5 by 28 inches, projecting about 7 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Courthouse tower (mark)	9	43.6	east of south
Tower of brick schoolhouse	24	16.2	east of south
Cross on church steeple	36	01.2	east of south
Gable of large yellow barn	65	51.6	east of south

Nashville, Brown County.—The station is in the northwestern part of the Green Lawn Cemetery, about one-fourth mile east of the courthouse. It is in the pathway north of the Harden lot, 48.2 feet east of the west fence of the cemetery, 110 feet south of the north fence, and 11 feet northeast of the northeast corner of the Harden monument. It is marked by a Bedford stone, 6 by 5 by 16 inches, with a brass station marker set in its top, and set flush with the ground. The following true bearings were determined:

	°	′	
North gable of white frame house on hill top (mark)	23	28.9	west of south
Church steeple	54	30.6	west of south
Pole on courthouse cupola	79	19.0	west of south

Rising Sun, Ohio County.—The station is in the old cemetery, about one-fourth mile northwest of the courthouse, and about halfway between the main gate of the cemetery and the tool house. It is at the northwest edge of a pathway and is 10 feet southwest of the southwest edge of the roadway leading to the tool house, and 10 feet northwest of the face of the tombstone of Harriet Vanness. It is marked by a white marble post, 6 by 6 by 19 inches, projecting 3 inches above the ground, and lettered U. S. C. & G. S. The following true bearings were determined:

	°	′	
Pole on schoolhouse tower (mark)	67	47.9	east of south
North gable of barn on hill	73	37.7	west of south
East gable of brick house	26	08.7	west of north

Salem, Washington County.—The station is in the southwestern part of the Crown Hill Cemetery, about three-fourths of a mile west of the courthouse, at the north edge of a roadway. It is 143.7 feet north of the south fence of the cemetery, 110.2 feet east of the west fence, 52.2 feet west of the west side of the base of the Shanks monument, and 28.2 feet north of the north side of the base of the Baner monument. It is marked by a post of Bedford stone, 5 by 7

INDIANA—Continued.

by 24 inches, lettered U. S. C. & G. S., and set with its face about 4 inches above the ground. The following true bearings were determined:

	° ′
Gable of barn on hilltop (mark)	42 37.5 east of south
Center of cemetery gate	67 53.9 east of north
Nearest gable of small white frame house	59 50.1 west of north
South gable of frame house	17 08.8 west of north

Scottsburg, Scott County.—The station is in the fair grounds, about one-half mile west of the courthouse. It is inside the racing track on the northwest side, and about 400 feet north northeast of the grandstand. It is 101 feet from the fence inside the track, and in line with the north end of the sheds east of the track and the south wall of a yellow frame house just beyond. It is marked by a Bedford limestone post, 4 by 6 by 19 inches, projecting about 2 inches above the ground, and lettered U. S. C. & G. S. The following true bearings were determined:

	° ′
North gable of white frame house (mark)	24 49.8 east of south
Schoolhouse tower	56 46.5 east of south
West gable of large red barn	65 23.0 east of north
Water tank	33 01.8 east of north

Tipton, Tipton County.—Observations were made in the southern part of the cemetery, about one-third of a mile southwest of the courthouse. The station is 189 feet north of the south fence of the cemetery, and 13 feet northwest of the northwest corner of the base of the Guttenberg monument. It is marked by a stone post 7 by 7 by 18 inches, projecting about 1 inch above the ground, with a magnetic station marker in the top. The following true bearings were determined:

	° ′
Gable of large red barn of county farm (mark)	8 59.8 west of south
Courthouse tower	45 08.7 east of north
Nearest edge of upright of cross on Lutheran Church steeple	39 18.7 east of north
Nearest point of north gable of brick county farm building	20 50.4 west of south

Versailles, Ripley County.—The station is in the cemetery, about one-fourth mile east of the courthouse, at a point 97 feet north of the south fence of the cemetery, and about 250 feet east of the west fence. The point is at the west edge of a broad pathway east of the Beers lot, 18.4 feet northwest of the northwest corner of the base of the tombstone of Mary C. Smith, 14.9 feet northwest of the northwest corner of the cement border around the same, and 12 feet southwest of the southwest corner of the base of the tombstone of Carl E. Thum. It is marked by the broken end of a 3-inch stone pump, 16 inches long, buried with its flange even with the ground. The following true bearings were determined:

	° ′
Gable of light yellow wooden house (mark)	32 00.7 west of south
Courthouse tower	75 25.6 west of south
Gable of small unpainted building about 600 feet away	63 05.0 west of north
Highest point of urn on tall monument	89 22.5 east of north

Vevay, Switzerland County.—The station is in the Odd Fellows' Cemetery, about three-fourths of a mile east of the courthouse. It is about 300 feet north of the main highway bounding the cemetery on the south, and about 100 feet southeast of the tool house. It is at the north edge of a pathway running east and west, 46 feet east of the west fence of the cemetery, and 10 feet north-northwest of the northwest corner of the Waldo monument. It is marked by a white marble post 6 by 6 by 18 inches, unlettered, with a hole in its center, and projecting about 3 inches above the ground. The following true bearings were determined:

	° ′
North gable of light yellow house across the Ohio River (mark)	5 39.8 east of south
Steeple of church	51 16.7 west of south
Gable of red barn, just east of cemetery	64 54.4 east of north

IOWA.

Adel, Dallas County.—The station is near the southwest corner of the city park, about one-half mile northwest of the town's center. It is on a hillside sloping toward the northeast, 56 feet north of the south fence, 29 feet southeast of an oak tree, 28 feet south of a second oak, and 210 feet southwest of the nearest edge of the race track. The station is marked by a Bedford limestone post 6 by 6 by 24 inches with a brass plate in the top, set flush with the ground. The following true bearings were determined:

	° ′
Flagpole on courthouse tower (mark)	34 54.2 east of south
Flagpole on high school cupola	3 50.0 east of south
Right edge of right-hand chimney on house southwest of fair grounds	26 31.4 west of south
Southeast corner of a house just west of fair grounds	82 00.2 west of north
South gable of brick house across river	45 29.5 east of north

IOWA—Continued.

Clarion, Wright County.—The station is in the county fair grounds, about three-fourths of a mile south of the town's center. It is near the northwest corner of the grounds, and at the southeast corner of a small grove, 209 feet east of the west fence, 171 feet south of the north fence, 119 feet northeast of the northeast corner of a shed, 238 feet northwest from the northeast corner of the grandstand, 239 feet from the fence around the track, and 15 feet south of the tree at the corner of the grove. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Right edge of right chimney of farmhouse (mark)	39	02.4	east of south
Northeast corner of farmhouse west of fair grounds	44	36.2	west of north
West gable of Mr. Pardon's barn	74	13.8	east of north
Flagpole on floral hall	83	14.0	east of north
Northwest corner of grandstand, near ground	13	28.1	west of south

Des Moines, Polk County.—The station of 1910 was reoccupied. It is in the State fair grounds, on the slope of the hill below and about 275 feet northwest of the poultry building, about on the line Grand Avenue would run if extended east through the grounds. It is 63 feet northwest of a large hickory tree, which stands between the station and the Polk County headquarters building, and 74.5 feet southwest of another hickory tree near a small building. The station is marked by a large rough stone lettered U. S. C. & G. S. The following true bearings were determined:

	°	′	
Lower cupola on Drake Sanitarium (mark)	17	35.2	west of north
Higher cupola on Drake Sanitarium	16	33.7	west of north
Center of base of rod on poultry building	39	11.7	east of south
Northwest corner of foundation of building just north of Polk County headquarters	72	16.7	east of north
Left edge of tower on poultry building, even with windows	41	32.8	east of south

Estherville, Emmet County.—The station is near northeast corner of the city park, just north of the courthouse and near the town's center. It is 34.1 feet west of the west edge of the walk on the east side of the park, 93.5 feet east of the curb around the fountain, 130.6 feet southeast of the southeast corner of the D. A. R. monument. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Southwest corner of post office, at bottom of granite (mark)	47	07.4	west of north
Northeast corner of post office, in line with first-story window	27	41.5	west of north
Southeast corner of Church of Christ	7	27.6	east of north
Southwest corner of brick hotel, 6 feet from ground	14	17.7	east of south
Southeast corner of library at the bottom of bricks	10	03.6	west of south

A marble post 6 by 3 by 18 inches, lettered U. S. and center marked, was set 400 feet to the south to mark the true meridian. This post is in line with the north face of the hotel, 122.6 feet west of the northwest corner of the hotel and 79.2 feet southeast of the southeast corner of the library.

Forest City, Winnebago County.—The station is in the county fair grounds, about one-fourth mile east of the town's center. It is within the race course near the south end, 341.7 feet north of the south fence of the fair grounds, 352.2 feet east of the east railroad fence and in line with the south side of a street and 243.1 feet west of the east fair grounds fence on this same line, and 332.5 feet southeast of the southeast corner of the grand stand. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Spire on courthouse tower (mark)	56	00.2	west of north
Norwegian Methodist Episcopal Church spire	25	38.6	west of north
Center of chimney on Chicago Johonson's house on hill	48	57.9	east of south
East gable of grain elevator	7	51.1	west of north
South gable of house on hill	20	13.4	east of north

A limestone post 6 by 12 by 40 inches with a hole drilled in the top was set 600.7 feet to the north to mark the true meridian.

Fort Madison, Lee County.—The station is in the southwest corner of a yard belonging to Mr. George Schlapps, at the top of Pine Street north of town. It is on a sloping hillside 42.5 feet from the wire fence along the west side of the yard, 34.5 feet east of a large pine tree near the west fence, and 23.5 feet from the inner edge of the brick walk measured

IOWA—Continued.

up the slope. It is south of a lilac bush and about in line between two small cedar trees. The following true bearings were determined:

	° ′
Flagpole (mark)	31 44.0 west of south
Spire on fire station	42 58.1 west of south
Cross on Catholic Church	71 42.9 west of south
South edge of smokestack on water pumping station	44 18.5 east of south

Humboldt, Humboldt County.—The station is near the cement dam in the Des Moines River, about one-half mile northwest of the town's center and about 1½ miles west of Dakota City. It is below the dam, on the east bank of the river, on property belonging to Mr. Mike Osea. It is 71 feet south of the north pasture fence, 122 feet west of the west bank of the canal, 65 feet east of the river bank, 15 feet south of a tree and 41 feet north of a large oak. The station is marked by a Bedford limestone post 6 by 6 by 24 inches with a brass plate in the top, and set flush with the ground. The following true bearings were determined:

	° ′
West gable of house (mark)	82 47.8 east of north
Southwest corner of a cottage	47 45.7 east of south
Left edge of cupola on Mr. Osea's chicken house	21 10.7 east of south
Extreme left edge of east concrete abutment to dam	18 21.4 west of north
Southwest corner of Mr. Osea's barn	10 25.3 east of south

Montezuma, Poweshiek County.—The station is located in the Mason and Odd Fellows' Cemetery, which is three-fourths of a mile southwest of town. It is 14.6 feet northeast of a tall cylindrical granite monument known as the Hall monument, a prominent object in the northeast section of the cemetery, and about 200 feet southeast of the main gate. The Wasson monument is 17½ feet to the northwest of station, John McAllister monument is 14½ feet to the northeast, and Cheshire monument is 8⅓ feet to the southeast. It is marked by a Bedford limestone post with a brass station marker in the top and set flush with the ground. The following true bearings were determined:

	° ′
Water tank on County Poor Farm (mark)	43 43.5 east of south
Spire on school building	31 27.6 east of north
Courthouse cupola	51 49.1 east of north
City water tower	53 34.7 east of north
Christian Church spire	89 59.7 east of south

Orange City, Sioux County.—The station is in the city park near the town's center. It is near the southwest corner of the park west of the tennis court, 36 feet east of the east edge of the street west of the park, 51 feet north of the row of trees on the south edge of the park, 36.5 feet west of the west fence around the tennis court, and 7 feet northeast of a large tree. It is marked by a Bedford limestone post 6 by 6 by 24 inches, with a brass plate in top and projecting 2 inches above the surface. The following true bearings were determined:

	° ′
Southeast corner of P. Cambiers house (mark)	23 03.6 west of south
Southwest corner of printing office at bottom of bricks	80 57.6 east of south
Northeast corner of Hosper's brick store	57 22.5 east of south
Northwest corner of Hosper's brick store	44 21.0 east of south

Primghar, O'Brien County.—The station is 130.2 feet southeast of the southeast corner of the schoolhouse, a two-story frame structure, and is 27¼ feet and 36½ feet from the inner edges of the walk to the east and south, respectively. A box elder tree is 17 feet southeast of station. It is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass station marker in the top, and set flush with the surface. The following true bearings were determined:

	° ′
German Lutheran Church spire (mark)	56 30.9 east of south
Flagpole on Bell office	16 25.0 east of south
Methodist Episcopal Church spire	0 56.2 east of north
Northeast corner of schoolhouse	33 04.9 west of north

Rock Rapids, Lyon County.—The station is on the east edge of the fairgrounds and about one-fourth mile southeast of the town's center. It is about in line with the second row of trees from the river bank and 16 feet south of the south tree in this row, 31 feet west of the river bank and 62 feet north of the fence around the race track. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	° ′
Spire on high-school tower (mark)	89 47.5 west of south
Right edge of cupola on Floral Hall	78 02.8 west of north
West gable of cupola on distant barn	64 27.7 east of north
Spire on round cupola of house south of town	70 14.2 west of south
Left edge of standpipe	77 11.8 west of south

IOWA—Continued.

Sibley, Osceola County.—The station of 1909 was reoccupied. It is about three blocks east of the northeast corner of the county courthouse square, in the city park, 114.7 feet north from the new cement walk running east along the south edge of the park. It is 62.7 feet east from the row of maple trees at the east side of the drive that enters the park at the south side, or about 80 feet east from the center of the north and south street which passes on the east side of the high-school block. The station is marked by a cement post 6 by 6 by 24 inches, set 1 inch below the surface, and very dimly lettered U. S. C. &. G. S., 1909, on the top, with a countersink mark at the center. The following true bearings were determined:

	°	′	
Northwest corner of the brick wall of high school, just below cornice (mark)	28	22.2	west of south
Left edge of vestibule of church near southwest corner of park	72	57.1	west of south
Southwest corner of the bottom of foundation of a house	15	21.1	west of north
Northwest corner of house east of park	80	58.5	east of north

Storm Lake, Buena Vista County.—The station is located in the Chautauqua Grounds on the shore of the lake about 6 blocks south of the courthouse. It is in the northeast corner of the grounds, 63 feet and 156 feet, respectively, from the north and east fences inclosing the park. The northwest edge of the women's toilet is 156½ feet southeast of station. Pine trees to the north-northwest and to the southwest are distant, respectively, 33½ and 41 feet. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 2 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
East edge of chimney at No. 221 Hudson Street (mark)	18	58.6	east of north
Northeast edge of Ramon's house	52	20.4	west of north
Northeast edge of women's toilet	25	45.7	east of south

Toledo, Tama County.—The station is in the county fairgrounds about one-fourth mile southwest of the town's center. It is about in line with the south side of the exhibition hall near the entrance to the grounds and 56 feet west of its southwest corner, 253 feet west of the east fence, 269 feet south of the north fence, 63 feet south of the main drive into the grounds, and 101 feet north of the northeast corner of a shed. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Spire on tower of Leander Clark College (mark)	63	00.9	east of south
Large gable on Henry Linton's house	87	38.5	west of north
East gable of Indian school building	71	06.4	west of north
Spire on brick house northeast of fairgrounds	45	16.3	east of north

A Bedford limestone post 6 by 8 by 14 inches, with a hole drilled in the top, was set 981.5 feet to the south, at the south fence of the grounds, to mark the true meridian.

Observations were also made at the south end of the meridian line in the courthouse grounds.

KANSAS.

Leavenworth, Leavenworth County.—The station of 1909 could not be reoccupied. A new station was established 400 feet southeast of the old one, on the Government reservation west of Fort Leavenworth Post buildings, midway between the wireless telegraph tower and the east fence of the national cemetery. It is 131 feet southwest of an oak tree, 46 feet southeast of another oak, and 300 feet northeast of the edge of a ravine. It is marked by the marble post of 1909, lettered U. S. C. &. G. S., set flush with the ground. The following true bearings were determined:

	°	′	
Left edge of smokestack of Federal penitentiary (mark)	20	28.7	west of south
Spire on clock tower of staff college	81	20.8	east of north
Right edge of brick chimney at the wireless station	61	08.5	east of south
Left edge of large cylindrical monument in cemetery	52	48.1	west of north
Cross on church spire	60	25.2	east of north

Winfield, Cowley County.—The station of 1902 was reoccupied. It is in the northwest corner of the campus of Southwest Kansas College, 330.5 feet from the northwest corner of the college building, 117 feet from the porch of the house on the north side of the road, and 28.4 feet from a pine tree to the southwest. The station is marked by a limestone post 7 by 8 by 36 inches, set flush with the ground, and lettered on top U. S. C. & G. S., 1902. The following true bearings were determined:

	°	′	
Southwest corner (at ground) of old college building (mark)	33	46.8	east of south
Northeast corner of a house (near ground)	66	49.8	west of south
West gable, house on the hill	78	24.0	east of north
Apex of letter "A" in word "Art" in northwest gable of new college building	53	47.6	east of south

KENTUCKY.

Albany, Clinton County.—The station is located 98 feet north by west from the north corner of the schoolhouse, 59.6 feet southeast of the corner of the fence inclosing the small dwelling house to the north of station, and 76.6 feet east by south from the southeast corner of the barn in the northwest corner of the grounds. The station is marked by a limestone post 6 by 8 by 24 inches, projecting about 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Southeast corner post, porch of Porter Perkins's house (mark)	17	40.9	west of north
East edge of stone chimney of Mr. Vincent's house	2	59.5	west of north
Southeast corner of Charles Hunt's house	16	12.5	west of south
Southeast corner of schoolhouse	24	28.5	east of south

Alexandria, Campbell County.—The station is located in the northwest corner of the fair grounds. It is south of the small pond near the west fence, 130.6 feet from the west fence, 62 feet from the south fence, and 48.2 feet from a tree to the north. It is marked by a Bedford limestone post 5 by 7 by 30 inches, with a brass plate in the top and projecting 3 inches above the ground. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	57	48.4	west of south
Catholic Church cross	48	01.4	west of south
Center of center chimney on red-roofed house to south	20	10.9	west of south
Base of flagpole on building at fair grounds	64	01.4	east of south

Bedford, Trimble County.—The station is located in the southwest corner of the grounds of the county high school. It is 188 feet southwest of the southwest corner of the building, 201 feet east of the west fence, and 244.5 feet south of the north fence. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Methodist Church spire (mark)	35	30.8	west of south
Catholic Church cross	5	46.1	west of south
Center of chimney on Wesley Rowlet's house to north	13	54.9	west of north
Southeast corner of foundation of Mrs. Wyatt's house	74	26.4	west of south

Burkesville, Cumberland County.—The station is located on the grounds of an abandoned college, about one-fourth mile north of the center of town. It is 146 feet southeast of the west door of the condemned brick structure, 25.6 feet north of the concrete walk, and 55.6 feet northwest of the driveway gate. The station is marked by an irregular shaped stone 6 by 6 by 24 inches, having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Christian Church spire (mark)	17	48.1	east of south
Spire on Alexander College	81	14 0	east of south
Spire on courthouse	13	33.1	east of south
Southeast edge of dormitory	86	43 0	west of south

Burlington, Boone County.—The station is located on the grounds of the county high school. It is 270 feet north of the northeast corner of the building, 36.6 feet south of the north fence, and 70 feet west of the edge of the cultivated field used for agricultural experimental purposes. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, having a brass plate in the top and projecting about 4 inches above the ground. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	74	52.0	west of south
Northeast corner of south extension of school building under eaves	2	18.0	east of south
Southeast corner of Senator S. W. Tolin's house	63	28.2	west of south
Northeast edge of north chimney on east end of Mrs Ridley's house	78	27.9	west of south

Calhoun, McLean County.—The station is in the cemetery on a hill three-fourths of a mile north of town. It is 129 feet west of the entrance to the cemetery, 6.5 feet north of W. M. Robertson's tombstone, and 25.5 feet south of Ingram monument. A large oak, 3 feet in diameter, is 132 feet north by west from the station. It is marked by a concrete post 8 by 8 by 24 inches with a brass plate in the top. The following true bearings were determined:

	°	′	
Courthouse flagpole (mark)	10	54.1	east of south
Methodist Church spire	7	16.0	east of south
City water tank	8	09.0	west of south

Campbellsville, Taylor County.—The station is 295 feet east of the southeast corner of the main building of the Baptist College at the northwest corner of town. It is 171 feet south of the road leading to the main entrance of the

KENTUCKY—Continued.

main building. It is marked by a limestone post 5 by 7 by 33 inches, which projects 2 inches above ground, with a brass plate in the top. The following true bearings were determined:

	° ′
Methodist Church spire (mark)	71 22.8 east of south
Spire on cupola on Dr. Sanders's house	32 59.9 east of north
Catholic Church cross	64 57.9 east of north
Baptist Church spire	52 16.2 east of south

Carlisle, Nicholas County.—Observations were made in the northeastern part of the cemetery, about one-third of a mile west of the courthouse. The station is near the south edge of a wide path running east and west, 75 feet west of the east fence of the cemetery and about 376 feet south of the north fence. It is 16 feet north-northeast of the center of the tombstone of Richard R. Freeman, in the form of a tree, 28.5 feet west-northwest of the northwest corner of the base of the Knox monument and 25 feet south of the south face of the base of the Fishback monument. It is marked by a Bedford limestone post 6 by 8 by 18 inches, with a magnetic station marker in the top and set level with the ground. The following true bearings were determined:

	° ′
Center of rod at top of courthouse (mark)	48 49.9 east of south
South gable of barn	86 33.0 west of north
South gable of white house	80 42.6 west of north
Belfry of schoolhouse	72 19.9 east of south
Tower of Methodist Church	55 07.2 east of south

Carrollton, Carroll County.—The station is located in the southeast corner of the courthouse square. It is 143 feet southeast of the southeast corner of the courthouse, 13.2 feet west of the west edge of the concrete sidewalk on the east of square, and 9.3 feet north of the north edge of south sidewalk. Trees to the northwest and northeast are distant, respectively, 29.3 feet and 9.9 feet. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, set flush with the surface of the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Southwest corner of post office (mark)	73 02.4 east of south
Southwest corner of courthouse	36 50.5 west of north
Northwest corner of Presbyterian Church	61 55.8 west of south

Columbia, Adair County.—The station is in the southeast corner of the Lindsay-Wilson Preparatory Training School grounds. It is 90 feet from the east fence, 94.6 feet from the south fence, and 369 feet southeast of the southeast corner of the main college building. It is marked by a cement post 4 by 12 by 30 inches, with a brass station marker in the top. The following true bearings were determined:

	° ′
Methodist Church spire (mark)	88 43.8 west of south
Center of cupola of courthouse	74 26.1 west of north
Flagpole on Lindsay-Wilson College building	26 57.8 west of north
Cupola on school building	66 12.2 west of south

A meridian line was established, the north meridian stone being distant 424.6 feet.

Danville, Boyle County.—The station is on the grounds of Center College, 219.5 feet northwest of main central building. A tree is 13 feet to the north of the station, a maple tree 33 feet to the east, a walnut tree 77 feet to the west, and another walnut tree 49.6 feet to the south. It is marked by a Bedford limestone post 6 by 6 by 30 inches, which projects 3 inches above ground and has a brass plate in the top. The following true bearings were determined:

	° ′
Southwest corner of Sayre Library (mark)	46 19.6 east of south
Northwest corner of Young Hall	27 56.9 west of south
Southeast corner of dormitory	83 25.1 west of north

Edmonton, Metcalf County.—The station is in the northeast corner of the courthouse yard. It is 131.4 feet northeast of the northeast corner of the courthouse, 42 feet from the row of hitching posts on the east, and 39 feet from the row to north of station. Trees north-northeast and east by north from station are distant 34.8 feet and 37.6 feet, respectively. It is marked by a limestone post 6 by 6 by 30 inches, which projects about 2 inches above ground, with a brass plate in the top. The following true bearings were determined:

	° ′
Baptist Church spire (mark)	37 28.1 east of south
Northwest corner of courthouse	38 07.5 west of south
Southwest corner of Peoples Bank	76 06.6 west of north

Falmouth, Pendleton County.—The station is in the courthouse yard, 59.5 feet from the northwest corner of the courthouse and 25.9 feet from the west fence. It is marked by a limestone post 4 by 10 by 24 inches, projecting about

KENTUCKY—Continued.

2 inches above the ground and having a cross in the top to mark the exact spot. The following true bearings were determined:

	°	′	
Northeast corner of Lutheran Church (mark)	3	28.6	east of north
Catholic Church spire	13	59.4	west of north
Lutheran Church spire	11	10.4	west of north

Glasgow, Barren County.—The station is on the campus of Liberty College, near the east entrance to the campus. It is 153.6 feet southeast of the northeast corner of the main building, and 67.3 feet north of the north side of the east entrance to campus. A large tree, 2 feet in diameter, is 26.2 feet to the north of station. The following true bearings were determined:

	°	′	
Presbyterian Church spire (mark)	86	15.3	east of south
Christian Church spire	70	54.6	east of north
Methodist Church spire	72	22.3	east of south
Northeast corner of college building	39	33.3	west of north

Greenup, Greenup County.—The station is located in the northwest corner of Riverview Cemetery, which is on the hill south of town, about seven blocks from the courthouse. It is 123.6 feet from the west fence, and 23 feet from the north fence. A tree to the northwest is distant 55.5 feet. It is near the stone wall surrounding the lot of David Trimble. The station is marked by a limestone post 6 by 6 by 30 inches, projecting 3 inches above the ground, in the top of which there is a brass magnetic station marker. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	17	30.3	east of north
Schoolhouse spire	16	28.7	east of north
North Methodist Church spire	23	17.9	east of north
South Methodist Church spire	36	50.8	east of north

Henderson, Henderson County.—Observations were made in the southeastern part of Fernwood Cemetery, in the intersection of two pathways, about 1½ miles southeast of the center of town. The station is 114 feet west of the east fence of the cemetery, 170 feet north of the south fence (measured along the path), and 32 feet south of the edge of a roadway. It is 29.6 feet southwest of the southwest corner of the base of the Anderson monument, 36.8 feet east-southeast of the southeast corner of the base of the Howard monument, and 36.7 feet north of the north face of the base of the Keown monument. It is marked by a post of Bedford stone 5 by 8 by 24 inches, with a magnetic station marker cemented in the top and sunk 2 inches below the surface of the ground. The following true bearings were determined:

	°	′	
West gable of barn (mark)	19	50.1	west of south
Gable of coal-mine tipple	86	45.8	west of north
West gable of barn	48	08.0	west of north
Peak of highest monument in cemetery	25	15.0	west of north

Hodgenville, Larue County.—The station is in the northeast corner of the school grounds. It is 238 feet northeast of the northeast corner of the school building, 159 feet south of the north fence, and 53 feet west of the west edge of the concrete sidewalk along the east of the grounds. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, lettered U. S. C. & G. S., 1912, and projecting about 2 inches above the surface. The following true bearings were determined:

	°	′	
Presbyterian Church spire (mark)	70	41.2	east of north
Cross on Catholic Church	67	10.0	east of north
Southeast corner of schoolhouse	39	10.8	west of south

Independence, Kenton County.—The station is located in the northwest corner of the courthouse square, about 115 feet due west of the northwest corner of the courthouse and about 75 feet north of the concrete walk leading to main door of courthouse. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, having a brass plate in the top and projecting about 3 inches above the ground. The following true bearings were determined:

	°	′	
Northeast corner of bank (mark)	40	47.1	west of north
Catholic Church spire	7	14.8	east of north
Northwest corner of old county clerk's office	71	17.4	east of north
Southwest corner of courthouse	46	01.6	east of south

Maysville, Mason County.—The station is located in the cemetery of the county infirmary, about 2 miles southeast of the center of town and one-half mile northeast of the Maysville Cemetery. It is 143 feet southeast of the west hedge fence inclosing the cemetery and 69 feet north of the south fence. An apple tree is 21 feet northeast of station. The

KENTUCKY—Continued.

station is marked by a limestone post 6 by 6 by 30 inches, projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Southwest edge of L. F. Pigg's house (mark)	37	35.8	east of south
Center of chimney of pressed-brick factory	57	13.5	east of south
Chimney on cemetery greenhouse	55	54.4	west of south

Morgantown, Butler County.—The station is located in the southeast corner of the fairgrounds, about one-half mile west of the center of town. It is 175 feet north of the race track measured from the east gate post, 192 feet east by north of the east corner of the grand stand, and 27 feet west of the east fence inclosing the grounds. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, lettered U. S. C. & G. S., 1912, and projecting 2 inches above the ground. The following true bearings were determined:

	°	′	
North gable end of house at county infirmary (mark)	24	37.8	west of south
Northwest corner of grand stand under eaves	80	29.4	west of south
West gable end of Mr. Tuck's house	31	06.2	east of north

Mount Olivet, Robertson County.—The station is located on the Chautauqua or Camp Grounds at the southwest edge of town. It is 103 feet south of the gate, 26.8 feet southeast of a stand for selling goods, and 87.8 feet north of another stand for selling edibles. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 12 inches and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North Methodist Church spire (mark)	16	50.4	east of north
Spire on cupola of schoolhouse	78	58.6	east of north
Center of west chimney on Jerry Lindwell's house	30	32.7	west of north

Mount Vernon, Rockcastle County.—The station is located on the county fairgrounds, about 1 mile east of the depot. It is inside the race track, 74.6 feet south of the east gate post leading into the ellipse, 192 feet east of the band stand, and 54.5 feet and 57.5 feet east of two trees supporting a triangular bench. The station is marked by a sandstone post 6 by 8 by 30 inches, with a brass plate in the top and projecting about 6 inches above the ground. The following true bearings were determined:

	°	′	
Schoolhouse flagpole (mark)	85	56.5	east of north
Tip of white water tank	85	26.8	east of south
Southwest corner of band stand	77	32.1	west of north
North corner of grand stand	49	34.8	west of north

Newcastle, Henry County.—The station is located in the northeast corner of the county high school grounds. It is 14.5 feet from the north fence, 63 feet west of the east fence, and 218 feet northeast of the northeast corner of the building. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass plate set in the top and projecting about 3 inches above the ground. The following true bearings were determined:

	°	′	
Baptist Church spire (mark)	58	28.9	west of north
Methodist Church spire	42	37.6	west of north
Courthouse flagpole	8	32.5	west of north
Northwest corner of schoolhouse	84	19.5	west of south

Nicholasville, Jessamine County.—The station is located in the northeast corner of the grounds of the public school. It is 76 feet west of the concrete walk along the east side of the grounds, 57 feet south of the street sidewalk, and 81.2 feet east of the east edge of the concrete walk leading to the brick school buildings. Trees to the northwest and northeast are distant 25.5 feet and 39 feet, respectively. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass plate in the top and projecting about 2 inches above the ground. The following true bearings were determined:

	°	′	
South spire on old college building to the east (mark)	81	04.3	east of south
Northwest corner of foundation of schoolhouse	22	10.6	west of south
Southwest corner of brick hemp factory	67	02.0	west of north

Paris, Bourbon County.—Observations were made in the southern part of a pasture belonging to Mr. Richard Marsh, about one-half mile north of the courthouse. The station is about 990 feet in a straight line nearly southwest from the gate at the northeast corner of the field and about 800 feet south-southwest from Mr. Marsh's house. It is at the edge of the hill overlooking the river, about 200 feet from the edge of the water and about 80 feet higher in elevation and is southeast of a group of trees beneath which are rows of rough stones set upright and said to mark old graves. It is 104 feet south-southeast of the center of a forked tree about 3 feet in diameter and 72 feet east of an elm

KENTUCKY—Continued.

tree about 18 inches in diameter. It is marked by a Bedford limestone post 5 by 7 by 24 inches, with a magnetic station marker in the top and projecting 10 inches above the ground. The following true bearings were determined:

	° ′
Tip of courthouse tower (mark)	12 34.4 west of south
Base of lightning rod on gable of Mr. Marsh's barn	37 33.4 east of north
East gable of large white barn	80 37.5 east of south
North gable of R. B. Hutchcraft elevator	2 51.4 west of south

Tompkinsville, Monroe County.—The station is located on the schoolhouse grounds, 202.6 feet northeast of the north corner of the building, 52 feet southwest of northeast fence, and 16.5 feet east of the path leading from the gate to the building. The station is marked by a limestone post 5 by 8 by 36 inches, projecting about 6 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Courthouse spire (mark)	35 37.4 east of south
Spire on Baptist Church	24 05.6 east of south
Cupola on schoolhouse	23 35.5 west of south
Northwest corner Deposit Bank	27 23.6 east of south

Vanceburg, Lewis County.—The station is located in the southeast corner of the schoolhouse grounds. It is 111.8 feet south of the southeast corner of the schoolhouse, 60.2 feet northeast of the sidewalk, and 52.7 feet northwest of the fence around Mr. Heinisch's place. A maple tree near the south walk is 58 feet distant from the station. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 4 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
West gable end of Graham's barn across river to north (mark)	27 45.5 east of north
West corner of foundation of school building	7 27.9 west of north
East corner of porch post on Dr. W. G. Baker's house	6 04.6 west of south
West corner of E. Heinisch's house	5 31.9 east of south

Warsaw, Gallatin County.—The station is located in the southeast corner of the cemetery, four blocks east of the courthouse. It is in the center of the driveway, 179.5 feet south of the north fence and 98 feet west of the east fence, and 28.3 feet from Buchanan monument to the east, 26.3 feet from Buchanan monument to the southwest, and 26.3 feet from Ferguson monument to the northwest. It is marked by a Bedford limestone post 5 by 7 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Methodist Church spire (mark)	75 07.4 west of south
Tip of water tank to northeast	66 00.8 east of north
Tip of water tank to southwest	24 33.1 west of south
Tip of water tank to northwest	49 38.6 west of north

Williamsburg, Whitley County.—The station is in the courthouse square, near the station that was occupied in 1896 and 1903. It is 36.4 feet from the fence to the northwest, 44 feet from the fence to the southwest, and 17.6 feet and 29.1 feet from two trees to the northeast and southeast, respectively. The station is marked by a stone 8 by 8 by 30 inches with a brass magnetic station marker in the top, which projects 4 inches above the ground. The following true bearings were determined:

	° ′
Cupola on Belmont Hotel (mark)	31 25.4 west of south
Southeast corner of brick store with cupola	22 29.5 east of south
South corner of Farmers Bank & Trust Co.	46 34.8 east of south
South corner of courthouse	57 06.8 east of south
Southwest corner of Stephens & Steely law office	21 54.8 west of north

Winchester, Clark County.—The station of 1910 was reoccupied. The removal of this stone was necessary and a new station was established in the northeastern corner of the campus of the Kentucky Wesleyan College. It is 196 feet east by north of the east corner of the main building, 69.8 feet north by east of the main walk, and it is between trees Nos. 7 and 8 counted from the main entrance to the campus, 15.3 feet from No. 7 and 10 feet from No. 8. The station is marked by a Bedford limestone post 5 by 7 by 30 inches, projecting 2 inches above the ground, and lettered U. S. C. & G. S., 1912. The following true bearings were determined:

	° ′
Southwest corner of main building (mark)	67 07.2 west of south
Southwest corner of boys' dormitory	49 20.6 west of south
Northeast corner of main building	85 33.8 west of north

A second post of freestone 5 by 7 by 36 inches, 261 feet south, marks the south end of a meridian line. A hole in the top marks the exact line.

MINNESOTA.

Buffalo, Wright County.—The station is on the courthouse grounds. It is 227 feet west from the southwest corner of the courthouse, and 67 feet west of the corner of the walk leading to the west door of the courthouse. It is 37.5 and 21 feet, respectively, from large pine trees to the west and north. It is marked by a Bedford limestone post 6 by 6 by 30 inches, set flush with the ground and having a station marker in the top. The following true bearings were determined:

	° ′
Cupola on barn across lake (mark)	51 48.3 west of south
Center of chimney on Blue house across lake	20 29.3 west of south
Southwest corner of Romer's house	52 56.1 west of north

Fergus Falls, Ottertail County.—The station is located in the southeast corner of the grounds of the Park Region Lutheran College, about 1 mile southwest of courthouse. It is 264 feet southeast of the southeast corner of the college building, 101.5 feet southeast of the band stand on the campus, 31 feet north of the third tree from the corner along the south side of the grounds, and 25 feet west of third tree from corner along east side. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 2 inches above ground, with a station marker in the top. The following true bearings were determined:

	° ′
Flagstaff on State Insane Hospital (mark)	6 56.4 east of north
Dome on schoolhouse	23 25.6 east of north
Church spire	32 41.0 east of north
Flagstaff on post office	53 23.5 east of north
Courthouse spire	67 35.9 east of north

Hallock, Kittson County.—The station is located in the small triangular park, just in front of the courthouse. It is 76 feet north of the apex of the triangle, and at the place where the width between sides of triangle is 29 feet 2 inches. It is 13 feet 9 inches from the east side and 15 feet 5 inches from the west side of the triangle. It is marked by a Kesota sandstone post 6 by 6 by 30 inches, roughly dressed at top, projecting 2 inches above ground, with a station marker in the top. The following true bearings were determined:

	° ′
Flagpole on schoolhouse (mark)	16 40.9 east of north
Black cross on gable of church	28 10.5 west of north
Cross on church, west of station	80 17.8 west of south

Ivanhoe, Lincoln County.—The station is located in the northeast corner of the courthouse grounds, in a grove of young trees about halfway between the courthouse and the schoolhouse. It is 28 feet from the walk along the east side of grounds and 10 feet and 15½ feet from small trees to the northwest and north-northwest of station, respectively. It is marked by a Bedford limestone post 8 by 8 by 30 inches, projecting several inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′
Cross on church (mark)	41 42.5 east of south
Northwest corner of courthouse	41 25.5 west of south
Southwest corner of schoolhouse	28 15.4 west of north

Jackson, Jackson County.—The station is located inside the race track at the fair grounds, about 1¾ miles east of the town and about one-fourth mile southeast of the depot. It is 98 paces southeast of the judges' stand and 62 paces due south of fence around track. It is marked by a Bedford limestone post 8 by 8 by 30 inches, projecting several inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′
Center of pole on Floral Hall (mark)	68 19.0 west of south
Windmill to south	6 51.4 east of south
South edge of red brick chimney	74 47.3 west of south
Pole on ticket office	84 18.2 west of south

Litchfield, Meeker County.—The station is located inside the race track at the fair grounds, about 1¼ miles south of the town. It is 54 paces northeast of the main entrance to the grounds, 85 paces east by north of the judges' stand, and 12 paces north from inner edge of race track. It is marked by a Bedford limestone post 8 by 8 by 30 inches, with a station marker in the top and projecting 3 inches above ground. The following true bearings were determined:

	° ′
Lutheran Church spire (mark)	18 05.0 east of north
Cupola on barn	54 32.1 east of north
Windmill to south	82 52.2 west of north
Cupola on red barn	66 36.0 west of north

MINNESOTA—Continued.

Long Prairie, Todd County.—The station is located inside the race track at the fair grounds, about a mile northeast of the courthouse. It is 147 feet due west of an old cave with a gable roof as a cover, and 71 feet east of the west side of race track and 78 paces north of the south end of the race track. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 3 inches above ground, with a station marker in the top. The following true bearings were determined:

	° ′
Courthouse flagstaff (mark)	47 26.6 west of south
Water-tank tip	19 04.7 west of south
Cross of church	42 54.4 west of south
Church spire	61 06.7 west of south
Spire on old schoolhouse	78 18.5 west of south

Madison, Lac qui Parle County.—The station is located on the grounds of the Lutheran College, at the northeast corner of the town, about three-fourths of a mile from the main street. It is in the large open space south of the main buildings, 95½ feet west of the walk leading to the main building and 101 feet north of the row of large trees along the south side of the grounds. It is marked by a Bedford limestone post 8 by 8 by 30 inches, projecting about 3 inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′
Courthouse spire (mark)	64 41.3 west of south
Schoolhouse flagstaff	22 56.1 west of south
Spire on college	20 28.6 east of north
Spire on dormitory	6 20.4 west of north

Mahnomen, Mahnomen County.—The station is located in the northwest corner of the courthouse grounds, 168 feet northwest from the northwest corner of the courthouse. It is 41 feet southeast of the second telephone pole from the corner and 11 feet north of a small tree near by. It is marked by a Bedford limestone post 6 by 6 by 30 inches, with a station marker in the top, and projecting 1 inch above ground. The following true bearings were determined:

	° ′
Catholic Church cross (mark)	2 22.9 west of south
Schoolhouse flagpole	5 18.6 west of south
Church steeple to southeast	37 25.1 east of south

Red Lake Falls, Red Lake County.—The station is located in the Protestant Cemetery, about 2 miles southeast of town. It is 90 feet south of the north fence, 220 feet west of east fence inclosing cemetery, 78 feet north of a fence inclosing a lot. An old black stump is 44 feet to northeast of station, and a tree is 50 feet southeast of station. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 4 inches above ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′
Top of granite monument to the southeast (mark)	35 52.5 east of south
Top of large granite monument to south	8 51.3 west of south
Southwest edge of brown granite monument	18 02.5 west of south
East edge of telephone pole near entrance	57 26.1 east of north

Roseau, Roseau County.—The station is located inside the race track at the fair grounds, about one-fourth mile north of town. It is 248.5 feet southeast of the judges' stand, 233.5 feet east of inner edge of race track measured from a point 100 feet south of judge's stand, and 176 feet west of inner edge of race track on opposite side of station. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 3 inches above ground, with a station marker in the top. The following true bearings were determined:

	° ′
Norwegian Church spire (mark)	23 10.4 west of south
Schoolhouse flagstaff	9 22.4 west of south
Swedish Church spire	4 51.3 west of south

St. Paul, Ramsey County.—The station of 1891 was reoccupied. It is in Oakland Cemetery, in the large open space just west of the center of the "Lake," 186.5 and 441 feet, respectively, from the inner edge of the wall of the cemetery along Sycamore and along Sylvan Streets. It is marked by a dressed-marble post 4 inches square, with intersecting grooves in the top, lettered U. S. 1891 C. S., and set flush with the surface of the ground. The following true bearings were determined:

	° ′
East edge of smokestack in railroad yard (mark)	5 39.6 west of south
West edge of same smokestack	6 13.6 west of south
Southwest corner of base of large monument	47 57.4 west of north
Center of spire of building to north	8 20.2 east of north
Gilted cross on church to east	77 25.3 east of south

MISSISSIPPI.

Brandon, Rankin County.—The station is located about one-half mile south of the center of town, on a field about 400 yards west of the public school. It is in the southeast corner of the field, a few paces south of an unkept wagon road, 121 feet from the fence to the south, and 125 feet from the southwest corner of the negro shanty to the northeast. The station is marked by a limestone rock 8 by 8 by 30 inches, projecting 1 inch above ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
West gable of residence south of church adjoining the school (mark)	74	27.1	east of south
North gable of building south of magnetic station	8	10.7	west of south

Coffeeville, Yalobusha County.—The station lies about three-fourths mile east of the courthouse in Mr. Armstrong's pasture and about 800 feet south of the pike. It is 85 feet from the bank of the stream to the west, 88 feet from that to the south, and 122 feet from that to the east. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground, with a brass station plate in the top. The following true bearings were determined:

	°	′	
West gable of residence 500 feet northeast of road (mark)	22	53.4	east of north
Courthouse spire	29	34.2	west of north
South edge of Pittman's residence on main road	19	49.9	east of north

The north end of a meridian line is marked by a limestone post 8 by 20 by 36 inches, projecting 9 inches above ground. A brass tack embedded in lead marks the exact line. The line is 305 feet long.

Collins, Covington County.—The station is in the city cemetery, about one-half mile southeast of the county courthouse. It is near the east side of the cemetery, 43 feet from the fence on the east side and 214 feet from that on the north side. The marble monument of the infant of W. L. Russel is 17.9 feet north, that of Almira J. Baker 23.3 feet northeast, that of W. H. McDermit 24.7 feet south, and that of James A. and Sue T. Woods 53.6 feet south by west. The station is marked by a Bedford limestone post 6 by 6 by 36 inches, projecting about 3 inches above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire on Methodist Church (mark)	2	54.6	east of north
Spire of Baptist Church	22	58.0	east of north
Spire on public school building	34	35.8	east of north
Southwest corner of J. Bradshaw's house	38	20.8	west of north

A Bedford limestone post 6 by 6 by 34 inches, projecting about 4 inches above the ground, has been set 364.8 feet due north of the magnetic station. A cross on its face indicates the position of the meridian line.

Columbus, Lowndes County.—The station is situated on the county fair grounds which are about 1 mile south of the center of the town. It is inside the race track and west of the football field which is surrounded by a wire fence. The station is 59 feet east of the wire fence at the northwest corner and 79 feet west of the west edge of the race track. It is marked by a limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
South gable of building at north end of field (mark)	4	22.4	west of north
Northeast edge of water tank northwest of station	47	51.7	west of north
Extreme southwest edge of roof of orphanage east of station	67	42.3	east of north

The south end of a meridian line is marked by a limestone post 8 by 8 by 30 inches projecting 3 inches above the ground with a one-fourth inch hole bored in the top and placed about 700 feet south of the magnetic station.

Decatur, Newton County.—The station is situated in a field owned by Mr. Warren, about one-fourth mile southwest of the center of town. It is 332 feet from the fence on the south end of the field, 205 feet from the fence on the west, and 342 feet from the fence on the east. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
West gable of Keith's residence (mark)	12	13.1	east of north
West gable of bank building	40	31.7	east of north
West gable of Day's residence at southeast corner of field	55	56.4	east of south
North gable of Gaine's residence	24	02.1	east of south
East gable of MacMullen's residence at west end of field	72	11.1	west of south

The north end of a meridian line is marked by an irregular rock of about 200 pounds, projecting 6 inches above the ground, and having a small hole bored in top to mark the exact spot. The line is 625 feet long.

Grenada, Grenada County.—The station is located about three-fourths mile east of the town's center on the east side of the Yalobusha River and immediately south of the county bridge. It is about 700 feet south of the east end of the bridge and in the south end of the field. It is 51 feet from the wire fence to the west of it, 115 feet from the small

MISSISSIPPI—Continued.

stream to the east of it, and 303 feet from a large oak to the south of it. The station is marked by a limestone post 8 by 8 by 30 inches, projecting one-half inch above the ground with a magnetic station marker in the top. The following true bearings were determined:

	° ′	
West gable of warehouse east of station (mark)	77 32.2	east of south
Upper west edge of central upright girder on south side of bridge	3 25.8	west of north

Hattiesburg, Forrest County.—The station is about 1½ miles south of the center of the city, on the grounds of the South Mississippi Baptist College. It is near the northwest corner of the grounds, 44.1 feet from the fence on the north side and 60.5 feet from the fence on the west side of the grounds. It is 230.3 feet north by west of the northwest corner of the main college dormitory. Three chinaberry trees bearing west, northwest, and north by east are 43.5 feet, 35.6 feet and 32.4 feet, respectively, from the station. A small pecan tree bearing southwest is 44.7 feet from the station. The station is marked by a Bedford limestone post 8 by 8 by 30 inches, projecting about one-half inch above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Spire on Catholic Church	9 43.5	east of north
East corner of Carter Building	6 28.7	east of north
Spire of county courthouse	0 16.1	west of north
Top of Mount Zion Colored Church	19 35.0	west of north
Spire of Immanuel Baptist Church	82 56.3	east of north

A Bedford limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground and set 653.5 feet south of the magnetic station, marks the south end of the meridian line.

Houston, Chickasaw County.—The station is one-half mile east of the courthouse in a pasture owned by Mr. Paten in the north end of the field. It is 75 feet from the wire fence to the west, 225 feet from that to the east, and 130 feet from that to the north. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 6 inches above the ground, with a brass magnetic station plate in the top. The following true bearings were determined:

	° ′	
Spire on Methodist Episcopal Church (mark)	81 35.5	west of north
Schoolhouse spire	75 35.3	west of south
South gable of courthouse	89 20.2	west of south
Center of top of water tank in horizon	71 11.0	west of north

Lexington, Holmes County.—The station is situated in a field owned by Mr. Lundy, about one-fourth mile west of the center of the town, and 800 feet north of the railroad. It is 41 feet from the fence on the north of the field, 308 feet from the fence on the south, and 188 feet from the fence on the west. The station is marked by a limestone post 8 by 8 by 32 inches, projecting one-half inch above the ground with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
North gable of large residence near depot (mark)	65 48.6	east of south
Upper right-hand edge of water tank	61 49.2	east of south
Courthouse spire	71 02.3	east of north
Spire on Herbert Hotel	42 21.9	east of north

Louisville, Winston County.—The station is situated on the County Fair Grounds, about one-half mile north of the center of town. It is in the northwest section of the field inside the race track. The stone is 461 feet from the south fence, 130 feet from the west fence and 62 feet from the north fence. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 2 inches above ground with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Gable of small outhouse west of grand stand (mark)	27 14.8	east of south
Top west edge of post at northeast corner of grand stand	44 34.2	east of south

Lucedale, George County.—The station is about a quarter of a mile north of the county courthouse, on the public-school grounds. It is 238 feet north by east of the northeast corner of the school building, 62.3 feet from a picket fence to the north, 49.7 feet from a picket fence east and 79.8 feet from a high board fence west. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 1 inch above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Base of spire of courthouse	1 05.7	east of south
West edge of town water tank	5 10.0	west of south
Northwest corner of public-school building	25 55.5	west of south
Base of spire of Baptist Church	36 49.9	west of south

MISSISSIPPI—Continued.

A cement post 6 by 6 by 48 inches, projecting about 10 inches above the ground, has been set 327.1 feet south of the magnetic station to mark the south end of the meridian line.

New Augusta, Perry County.—The station is about three-fourths of a mile east of the county courthouse, on the lot recently purchased for a new schoolhouse. It is about 350 feet from the west boundary, about 73 feet from the east boundary and about 682 feet from the north boundary of the school property. The station is marked by a Bedford limestone post 6 by 8 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Northeast corner of chimney on Mrs. T. E. H. Robinson's house	63 16.7 west of north
Spire of Baptist Church	75 37.9 west of north

A cement post 6 by 6 by 30 inches, projecting 3 inches above the ground, was set 383.6 feet north of the magnetic station to mark the north end of the meridian line.

Paulding, Jasper County.—The station is in the southeast edge of the village on the public-school grounds. It is 244.6 feet northwest of the northwest corner of the school building, 65 feet from a fence to the southwest and 76.7 feet from a fence to the northwest. Two oak trees, one bearing about east and the other east by north, are 72.9 and 52.7 feet, respectively, from the station. The station is marked by a Bedford limestone post 6 by 8 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Spire of Methodist Church (mark)	62 15.7 west of south
North edge of chimney on Masonic Building	87 39.4 west of south
Gable on roof of R. H. Read's residence	74 06.2 west of south

Philadelphia, Neshoba County.—The station is located on the public-school grounds, about one-fourth mile north of the town's center. It is 290 feet from the northwest edge of the schoolhouse and 440 feet from the middle of the road to the south. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	° ′
West gable of building southeast of school (mark)	65 10.5 east of south
West gable of residence south of school	55 45.5 east of south
Northwest edge of school	85 59.6 east of south

Pittsboro, Calhoun County.—The station is about three-eighths mile east of the courthouse, in a pasture owned by Mr. Scott. It is in the southeast corner of the field, 78 feet from the barbed-wire fence to the south, and 130 feet from that to the east. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground with a brass magnetic station plate in the top. The following true bearings were determined:

	° ′
Courthouse spire (mark)	72 03.6 west of north
East gable of residence, 400 yards distant	23 57.5 west of south
West gable of outhouse in field east of station	52 58.8 east of north

The north end of a meridian line is marked by a stone 6 by 6 by 20 inches, projecting 1 inch above the ground, and having a one-fourth inch hole in the top to mark the exact line. The line is 350 feet long and the north stone is about 5 feet south of the road fence.

Pontotoc, Pontotoc County.—The station is about a quarter of a mile east of town in the southeast corner of a pasture belonging to Mr. Bell, the north edge of which borders on the main road leading out of the town. It is 78 feet from the wire fence to the east and 80 feet from the fence to the south. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above ground, with a brass magnetic station plate in the top. The following true bearings were determined:

	° ′
West gable of residence at north end of field (mark)	2 13.4 west of north
North gable of residence on hill	79 26.3 east of north
West gable of building on Main Street	49 16.8 west of south

The north end of a meridian line is marked by a rock 5 by 8 by 18 inches, projecting one-half inch above ground, and having a one-fourth inch hole in top to mark the exact line. The line is 575 feet long and the north stone is about 5 feet south of the fence inclosing a negro shanty.

Raleigh, Smith County. The station is about a quarter of a mile southeast of the courthouse, in a pasture belonging to Mr. B. Harrison. It is near the south end of an open field, 95.7 feet from a fence on the west side and 58 feet from a fence on the east side. An oak tree bearing about west by south is 109 feet from the station and two small oak trees, both bearing about east by south, are 56.4 and 65.2 feet, respectively, from the station. The station is marked by a

MISSISSIPPI—Continued.

Bedford limestone post 6 by 8 by 30 inches, projecting about 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Northeast corner of north chimney on B. Harrison's hotel (mark)	7	54.3	west of north
Northeast corner of chimney on C. Tullo's residence	56	40.4	west of north
Southeast corner of north chimney on T. J. Wills's house	19	29.5	east of north
Southeast corner of chimney at north end of J. B. Guthrie's residence	38	11.4	east of north

A cement post 6 by 6 by 30 inches, projecting about 2 inches above the ground and set 303.2 feet north of the magnetic station, marks the north end of a meridian line.

Ripley, Tippah County.—The station is about a quarter of a mile east of town in the north end of a pasture belonging to Mr. Clayton, the north end of which borders on the main road leading out of the town. It is 181 feet from the fence to the east, 69 feet from that to the west, and 80 feet from that to the north. The station is marked by a limestone post 8 by 8 by 30 inches, projecting one-half inch above the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
South gable of Thermond's residence (mark)	34	42.9	west of north
Water tank	64	57.4	west of north
Spire of Methodist Church	78	00.6	west of south
Northeast edge of courthouse	75	37.2	west of north

Starkville, Oktibbeha County.—The station is situated in the south end of the county fair grounds, which are about three-fourths mile west of the town's center. The stone is 60 feet east of the center of the race track on the west, 123 feet north of it on the south, and 231 feet west of it on the east. It is marked by a limestone post 8 by 8 by 30 inches, projecting 2 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
South gable of large barn one-half mile north of fair grounds (mark)	7	11.8	east of north
West gable of residence at northeast corner of the grounds	55	25.8	east of north
North gable of house southwest of fair grounds	78	58.8	west of south
North gable of large barn southeast of grounds	31	14.7	east of south

The north end of a meridian line is marked by a round concrete post formed in a small nail keg with a one-fourth inch hole in the top. It is on the level with the ground and about 30 feet from the track on the north. The line is about 750 feet long.

MISSOURI.

Charleston, Mississippi County.—The station is in the southeast corner of the public-school grounds, about one-half mile east of the center of the town. It is 15 feet from the north edge of the cement sidewalk on the south, and 55 feet from the middle of the road on the east. The station is marked by a concrete post 7 by 7 by 27 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of residence 400 feet distant (mark)	3	26.3	east of south
Southwest edge of school building	52	42.7	west of north
Northeast edge of school building	22	46.5	west of north
South gable of residence	0	32.8	east of north
North gable of barn	67	17.5	east of north

A similar stone with a one-eighth-inch hole in the top was set 350 feet due north of the magnetic station.

Doniphan, Ripley County.—The station is in the north end of the town baseball park, which is about one-fourth mile southwest of the courthouse. It is 62 feet from the fence on the north, and 58 feet from that on the east and is marked by a limestone post 7 by 7 by 27 inches, lettered U. S. C. & G. S., 1912, and set flush with the ground. The following true bearings were determined:

	°	′	
East gable of barn (mark)	12	22.4	east of south
Flagpole on mill	40	45.2	east of north
Church spire	48	11.8	east of north
Flagpole on courthouse	57	02.4	east of north

Grant City, Worth County.—The station is in the cemetery about one-half mile west of town. It is near the north end of the main drive, just south of a flower bed. It is 47 feet south of the north fence, 59 feet southeast of an ash tree, 21.5 feet northeast of the Mason monument, and 24 feet southwest of the Faubion monument. The station is

MISSOURI—Continued.

marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Flagpole on courthouse tower (mark)	89	08.0	east of south
Flagpole on high-school cupola	84	30.4	east of south
East gable of house southwest of cemetery	62	36.5	west of south
Spire on distant silo near large barn	43	55.2	west of north
Spire on city water tank	89	21.2	east of north

Hillsboro, Jefferson County.—The station is in the southwest corner of the public-school grounds, which are about 500 feet west of the courthouse. It is about 68 feet from the wire fence across the road to the west, 32 feet from the tree to the southeast, 70 feet from the fence across the road to the south, and about 150 feet from the southwest corner of the school. The station is marked by a limestone post 8 by 8 by 30 inches, projecting about 2 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	°	′	
North gable of barn (mark)	19	48.4	west of north
Northwest edge of Greenhurst's residence	35	31.4	east of north
Gable on Masonic Hall	79	15.9	east of north
North gable of Marsdon's residence	22	37.3	east of south
East gable of residence 400 feet southwest of station	49	58.2	west of south

Independence, Jackson County.—The station is on the fair grounds, about 1 mile south and one-half mile east of the town's center. It is within the race course near the center and near the south bank of a small brook. It is about 100 feet south of the pumping station (small pump house for fairgrounds), and about in line with the pump house and the cement curbstone of the well. It is 28 feet south of th edge of the bank, 53 feet south of a large tree on the north bank, about 400 feet northeast of the grand stand, and 253 feet east of the fence around the inner edge of the race track. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Right edge of chimney on bungalow west of fairgrounds (mark)	78	20.0	west of south
Northwest corner of Mr. Smith's house at northeast corner of fairgrounds	35	40.9	east of north
East gable of house on hill west of fairgrounds	81	53.0	west of north
Center of pillar at the southeast corner of grand stand	34	46.7	west of south

Liberty, Clay County.—The station is near the southeast corner of a large pasture belonging to Mr. Silas Conway, about 1 mile east and one-half mile south of the town's center. It is 49 feet east of the east foundation of the ruins of an old brick house, 94 feet northwest of a large sycamore tree which is at the junction of a rail and wire fence, 211 feet west and a little north from the southeast corner of the pasture, 188 feet west of a wire fence, and 175 feet southwest of a spring on the cliff south of Rush Creek. It is between Rush Creek and a ravine, on a hill which extends toward the southeast from the station. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 6 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Center of pillar farthest to left on dormitory at the college	60	35.9	west of north
South gable of a two-story house across valley	7	57.5	east of north
South gable of Mr. Robeson's house on hill	53	48.8	east of north
West gable of Mrs. Musbach's house in valley	79	46.5	east of north
Right edge of Jewell Hall at the college	65	54.8	west of north

New Madrid, New Madrid County.—The station is in the southeast corner of the public-school grounds, about one-half mile north of the center of the town. It is 25.3 feet from the north edge of the sidewalk to the south, 27.9 feet from the tree to the southeast, and 34 feet from the fence to the east. The station is marked by a concrete block 24 inches long and 8 inches square at the top. The top is just below the surface of the ground and is lettered U. S. C. & G. S., 1912. The following true bearings were determined:

	°	′	
North gable of residence (mark)	6	26.7	east of south
South gable of residence 500 feet distant	50	45.6	west of south
Southwest edge of school	75	39.0	west of north
Northeast edge of school	58	42.1	west of north
South gable of residence	0	31.8	west of north

Oregon, Holt County.—The station is in the city park, about one-half mile north of the town's center. It is in the northwest corner of the park on the hill, 104 feet east of the west fence, 293 feet south of the north fence, 328 feet from the northwest corner of the grounds, and 50 feet northeast of a large oak tree. The station is marked by a Bedford

MISSOURI—Continued.

limestone post 6 by 6 by 24 inches, projecting 2 inches above the ground, and having a brass plate in the top. The following true bearings were determined:

	°	′	
Spire on cupola of A. H. Bailey's barn	45	20.8	east of north
Spire on cupola of A. H. Bailey's corn shed	47	13.9	east of north
West edge of west brick chimney on Mrs. Spoerle's house on hill	36	58.6	west of south
North gable of Lee Green's house on hillside	42	34.4	west of south
North edge of north brick chimney on Philip Rush's house	88	18.0	west of south

Platte City, Platte County.—The station is in the northern part of Mr. R. P. C. Wilson's large yard, about one-fourth mile southeast of the town's center. It is 60 feet south of the north fence, 228 feet from the fence along the road leading to town, 100 feet east of a tree, and about 300 feet north of the Wilson house. It is on the high part of the hill, ground sloping toward east and west. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, projecting 6 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Weather vane on cupola of Mr. Mason's house northwest of town (mark)	61	01.0	west of north
Right edge of large square monument in cemetery	36	41.1	west of north
Right edge of Mr. R. P. C. Wilson's house, near foundation	33	03.6	east of south
Spire on round cupola of Mr. Chestnut's house	56	23.9	west of south
North gable of a barn	80	08.7	east of south

Richmond, Ray County.—The station is on the county farm, about one-half mile southwest of the town's center. It is in the large open pasture in front of the county farm building and about 50 yards from the building. It is 30 feet south of a hickory tree, 32 feet north of an elm tree and is about in line with these trees, 86 feet northwest of the fence around the buildings, and 17 feet north of the line of the south fence produced westward. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Right edge of stand pipe (mark)	84	38.2	east of north
Extreme left edge of county farm building, above cement	60	50.1	east of south
Extreme right edge of county farm building, above cement	30	01.1	east of south
Left edge of large dark tombstone in cemetery on hill	22	29.7	east of north
South gable of a house in village	42	54.9	east of north

Rockport, Atchison County.—The station is in the city park, about one-fourth mile southeast of the town's center. It is about in line with the east side of Floral Hall and 79 feet south of this building; 50 feet from a small log cabin on the west, and 134 feet west of a row of trees along the west side of the race track. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, projecting about 4 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
West gable of Mr. Andremann's residence, on hill north of park	18	13.9	east of north
East gable of barn across stream	49	11.8	west of north
Southeast corner of a barn, near ground	60	46.3	east of north
Apex of steel windmill	53	35.1	east of south

St. Joseph, Buchanan County.—The station is in a pasture on the county farm, about 6 miles northeast of the town's center. The pasture is just west of the road leading to the main building. The station is 40 feet north of a large oak tree, 82 feet west of the fence along the road, and 149 feet southwest of the south gatepost at northeast corner of pasture. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, lettered U. S., 1912 and projecting 2 inches above the ground. The following true bearings were determined:

	°	′	
East gable of a house on hill	20	50.0	west of north
Southwest corner of brick house at county farm	25	31.8	east of north
Left edge of left small brick chimney on county farm building	53	49.4	east of north
Northeast corner of house on hill	63	20.9	west of north
Right edge of small brick building near northeast corner of pond	53	20.6	west of north

St. Louis, St. Louis County.—The station of 1900 was reoccupied. It is on the baseball grounds in the center of Forest Park, about 500 feet southeast of the police substation, and is marked by a limestone post 6 by 6 by 36 inches, lettered U. S. C. & G. S. and projecting about 4 inches above the ground. The following true bearings were determined in 1900:

	°	′	
Center of base of flagstaff on police station (mark)	22	02.1	west of north
Center of base of flagstaff on Y. M. C. A. Building	68	42.6	west of south

MISSOURI—Continued.

Savannah, Andrew County.—The station is in the northwest corner of the high school grounds, about one-fourth mile northwest of the town's center. It is just south of a group of trees, 47.5 feet southwest of the most easterly tree, 72 feet southeast of the tree on the corner, and 63.2 feet from the fence on the west. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, with a brass plate in the top, which projects 1 inch above the ground. The following true bearings were determined:

	°	′	
Spire on round cupola of Mr. Lauder's residence (mark)	50	51.9	east of north
Cross on Catholic Church spire	75	42.8	east of south
East edge of east chimney on high school building	18	52.1	east of south
East gable of Rev. J. S. Kirby's house	79	03.4	west of north

A granite post 5 by 5 by 14 inches, with a quarter-inch hole in the top, sets 303.5 feet to the south and marks the true meridian line. This stone is in line with the north face of the north wing of the high school building and 65.5 feet west of the northwest corner of this wing. Its top is 3 or 4 inches below the surface.

Springfield, Green County.—The station is located in the extreme northeast section of the National Cemetery, which is about 3½ miles southeast of the square in the south side of town. It is 68 feet from the fence on the north, 90 feet from the fence on the east, and 45 feet from the stone wall on the west. The station is marked by a hard limestone post with a brass marker in the top 7 by 7 by 27 inches, sunk flush with the surface of the ground. The following true bearings were determined:

	°	′	
Upper southeast edge of north post of gateway (mark)	10	01.1	west of south
West gable of stone house one-fourth mile distant	80	51.2	east of south
North gable of barn one-half mile distant	89	17.6	east of south
Southwest edge of residence 300 feet distant	46	32.7	west of north
Northwest edge of upper part of pedestal of Confederate Monument	27	12.5	west of south

A similar stone post was set 450 feet due south of the magnetic station, within a few feet of the south fence.

Waynesville, Pulaski County.—The station is in what is generally known as the picnic grounds, which is on the south side of the stream running through the town, and on the west side of the main road entering the town from the north. It is about 48 feet from the center of a rough wagon road running through the south side of the grounds; 88 feet from the wire fence on the south, and 127 feet from the center of the main road on the east. The station is marked by a concrete block 10 by 10 by 20 inches, sunk level with the surface of the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Church spire, 300 yards distant (mark)	19	29.3	east of south
North gable of Baker Hotel	12	22.3	east of south
North gable of residence 500 feet southwest of Baker Hotel	10	27.3	east of south

NEBRASKA.

Blair, Washington County.—The station is in the northeast corner of the courthouse grounds, near the town's center. It is 50 feet south of the cement walk on the north side of the grounds and 105 feet northeast of the northeast corner of the courthouse. It is marked by a Bedford limestone post 7 by 7 by 36 inches, sunk level with the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
Apex of city reservoir on distant hill (mark)	6	28.8	west of south
Northwest corner of courthouse at bottom of bricks	64	02.2	west of south
Southwest corner of main part of G. A. R. Monument	75	08.9	west of north
Southwest corner of Catholic Church at foundation	52	40.9	east of north

Fullerton, Nance County.—The station is on a hill about one-half mile west of the town's center. It is in Mr. Frank Frame's back yard, on the brow of the hill overlooking the town and valley to the east. It is 50 feet south and a little east of the southeast corner of the barn, 10 feet east of the line of the east side of the barn, and 6 feet from the edge of the steep hill. The station is marked by a Bedford limestone post 6, by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Cross on Catholic Church spire (mark)	74	32.5	east of north
Flag pole on courthouse tower	84	47.3	east of south
Ball on cupola of Presbyterian Church	75	43.2	east of south
East chimney of J. Egerton's house on distant hill	49	46.9	east of north
South gable of the Fullerton elevator	63	06.8	east of north

Grand Island, Hall County.—The station is in an open lot belonging to Mr. S. D. Ross, about three-fourths mile southeast of the town's center. It is 62 feet east of the east edge of a large pond, 104 feet north of the railroad track,

NEBRASKA—Continued.

about 150 feet south of the edge of a grove of large cottonwood trees, and 400 feet south of the fence along the road. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Spire on courthouse tower (mark)	34	41.0	west of north
Cross on German-Russian Church spire	4	46.2	east of north
South edge of wide brick chimney on Mr. Wasner's house	82	56.2	west of north
Cross on north spire of Catholic Church	63	30.9	west of north
Flagpole on cupola of high school	49	21.7	west of north

Lexington, Dawson County.—The station is in the county fair grounds, about 1 mile south and a little east of the town's center. It is near the north end of the grounds, between the road leading to the grand stand and the race track. It is 344 feet south of the fence along the north side of grounds, 95.5 feet east of a pump near a small frame building, 81.5 feet west of the fence around the race track, and 382 feet north of the northwest corner of the grand stand. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Spire on cupola of high school building (mark)	2	49.4	east of north
Spire on judges' stand	18	55.2	east of south
Weather vane on large barn	83	48.8	west of south
West edge of top of high brick smokestack	10	40.0	west of north
Catholic Church spire	3	45.3	west of north

Loup City, Sherman County.—The station is in Harry Jenner's park about one-half mile west of the town's center. It is near the north corner of the park, 34 feet northwest of the northwest side of the basket-ball ground, 20 feet northwest of a cottonwood tree, 34 feet northeast of a box-elder tree, and 47 feet southwest from a fence. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Extreme north edge of upper cement base of sun dial (mark)	58	58.5	west of south
South gable of Harry Jenner's barn	77	13.8	west of north
Oil cup at apex of stationary circle swing	29	52.0	west of south.

Madison, Madison County.—The station is near the northwest corner of the courthouse yard, about one-fourth mile south of the town's center. It is 79 feet north of the northwest corner of the courthouse and nearly in line with the west side, 99 feet west of the cement walk leading to the front door of the courthouse, 14 feet southwest of an elm tree and 24 feet southeast of a second elm tree. It is marked by a Bedford limestone post 6 by 6 by 24 inches, which projects about 1 inch above the ground and has a brass plate in the top. The following true bearings were determined:

	°	′	
Northeast corner of high-school building, just below eaves	34	49.3	west of north
Cross on Catholic Church spire	56	42.7	east of north
Southeast corner of jail, near ground	10	40.2	west of south
Spire on southwest corner of German Lutheran Church	74	20.1	west of north

Nebraska City, Otoe County.—The station of 1909 was reoccupied. It is in the grounds of the State Institution for the Blind, north of the town. It is 196 feet west from the southwest corner of the main building and 66.5 feet south from the fence along the orchard. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, projecting 4 inches above the ground and having a brass plate in the top. The following true bearings were determined in 1909:

	°	′	
Northwest corner of brick cottage (mark)	16	42.1	west of south
Flagpole on institute cupola	82	54.4	east of south
Left edge of institute building	74	34.4	east of north

Oshkosh, Garden County.—The station is in an open lot surrounded by cottonwood and box elder trees about one-half mile north of the town's center, on property belonging to August Sudman. It is near the southeast corner of the lot, 131.6 feet from the fence on the east, 155 feet south of the north fence, and 160.5 feet north of the south fence. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Ball on Lutheran Church cupola	22	01.9	west of south
Small gable near northeast corner of Lutheran Church	20	53.1	west of south
North gable on W. W. Bower's house	12	04.8	west of south
Northeast corner of brick chimney on August Sudman's house	11	35.3	east of south
Southeast corner of J. C. Foster's barn, near ground	39	44.8	east of north

NEBRASKA—Continued.

Seward, Seward County.—The station is near the east side of the Chautauqua grounds, about one-half mile west of the town's center. It is 62 feet west of the east fence, 30 feet east of an elm tree, 16½ feet south of a second elm tree, 121 feet southwest of the south granite gatepost, and 152 feet north of the south fence. It is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
North edge of standpipe	74	53.7	east of north
Spire on railroad water tank	81	21.0	east of south
Northwest corner of capstone on south granite gatepost	29	40.6	east of north

Taylor, Loup County.—The station is about one-fourth mile north of the town's center in a small lot belonging to Joseph Rusho. The lot is on the south bank of the Loup River, just west of the main road bridge. The station is 50 feet from the steep bank of the river, 90 feet from the fence post at the edge of the river, 53 feet from the fence along the west side of the road and about 150 feet from the northwest corner of the bridge. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, having a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
North gable of Mr. Crowell's barn (mark)	13	46.9	east of south
Small gable above second-story window at northeast corner of hotel	5	10.1	east of south
Weather vane on large barn	57	39.9	west of south
Spire on silo across river	17	55.6	east of north

NEW JERSEY.

Berlin, Camden County.—The station is in the western part of the Berlin Cemetery, about 1½ miles northwest of the town's center. It is in line with the center of the path south of the Gardner lot, 122 feet north of the south fence, 92 feet west of the southwest corner of the base of the Gardner monument, and 93 feet west of the southwest corner of the base of the Butler monument. The station is marked by a 3-inch tile pipe, projecting 1 inch above the ground and having a brass magnetic station mark cemented in the top. The following true bearings were determined:

	°	′	
North gable of hall, about one-half mile away (mark)	51	29.0	east of south
East gable of small frame house, one-fourth mile away	82	03.5	west of south
South gable of small barn, about 1,000 feet away	34	06.7	west of north
West gable of white two-story frame house, 600 feet away	3	49.3	east of north

Elmer, Salem County.—The station is in the Chestnut Grove Cemetery, about 1 mile northwest of the center of the town, near the north side of the central circle of the cemetery. It is 14 feet southeast of a cedar tree at the edge of the circle, 12 feet south of another cedar tree at the edge of the circle, 50 feet south of the southwest corner of the base of the Hitchner and Langley monument, and 87 feet east of the northeast corner of the base of the Wentzell monument. The station is marked by a 4-inch tile pipe set level with the ground and having cement in the top, in which a brass magnetic station mark is set. The following true bearings were determined:

	°	′	
Steeple of Methodist Church (mark)	28	15.4	east of south
South gable of barn, about one-fourth mile away	3	09.3	west of north
Gable of tool house	72	12.7	east of south

Moorestown, Burlington County.—The station is located on the golf grounds, about one-half mile north of the railroad station. It is in the southeast part of the grounds, about 1,000 feet east of Chester Avenue, about 16 feet north of the south boundary of the grounds. It is 152 feet east of the northeast corner of a wagon shed, and 305 feet southeast of a tree 40 inches in diameter, just west of a ditch. The station is marked by a marble post 5 by 5 by 24 inches, set level with the ground, with a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
West gable of red barn about 1,000 feet away	19	17.6	west of north
West gable of house about 800 feet away	52	54.1	east of north
Top of flagpole in front of clubhouse on Chester Avenue	81	15.6	west of south
East gable of barn about one-half mile away	36	44.9	west of north

A meridian line was marked temporarily by a stake set 457 feet north of the magnetic station.

Swedesboro, Gloucester County.—Observations were made over a triangulation station of the Coast and Geodetic Survey. It is near the top of a hill about 2 miles south of town on the farm of Mr. Andrew Cogan, 400 feet west of Mr. Cogan's house and about 300 feet northwest of the barn, about 37 feet south of a rail fence, and 60 feet southwest of a

NEW JERSEY—Continued.

peach tree 8 inches in diameter just south of the fence. The station is marked by a granite post 6 by 6 inches, projecting about 4 inches above the ground with a triangle cut in the top. The following true bearings were determined:

	°	′	
Northeast gable of large barn, about one-half mile away, with windmill behind it (mark)	4	05.0	east of south
Center of shaft of windmill about three-fourths mile away	89	05.1	west of north
South gable of red barn about 800 feet away	31	56.2	west of north
West gable of two-story frame house next to windmill about 1 mile away	77	32.3	east of south

Williamstown, Gloucester County.—Observations were made in a meadow belonging to Mr. Paul Hoffman, about 1¼ miles southwest of the center of the town, on the south side of the highway to Clayton, just beyond a small swampy place. The station is 182 feet south of the gate from the highway into the meadow, 20 feet east of the west fence line, and approximately 50 feet from the edge of the swamp. It is marked by a concrete post 4 by 4 by 18 inches, projecting about 2 inches above the ground and having a brass magnetic station mark cemented into its top. The following true bearings were determined:

	°	′	
East gable of three-story frame house 800 feet away (mark)	6	13.6	west of south
South edge of top of smokestack about 1 mile away	60	58.8	east of north
South gable of long low barn or shed about one-fourth mile away	29	07.6	east of north
South gable of two-story frame house 600 feet away	57	45.3	west of south

Woodbury, Gloucester County.—Observations were made on the grounds of the Woodbury Country Club (owned by Col. Green), about three-fourths mile south of the courthouse. The station is in the southwestern part of the golf links, near the top of a mound, 76 feet north of the south fence, 56 feet west of the southwestern one of two cedar trees 10 feet apart, 133 feet south of a cedar tree about 60 feet south of a maple, and 136 feet southeast of a chestnut tree with three forks. The station is marked by a marble post 6 by 6 by 18 inches, set flush with the ground and having in its top a brass magnetic station mark. The following true bearings were determined:

	°	′	
Courthouse tower (mark)	40	21.1	west of north
West gable of house about 1,000 feet away	12	33.5	east of north

Woodstown, Salem County.—The station is on the old race-track grounds, about three-fourths mile southwest of town. It is on the east side of the highway to Salem, just beyond the place where the road to Sharpstown branches off. It is near the west corner of the grounds, outside of the running track, about 19 feet from its outer edge, 38 feet from the southwest fence, 73 feet from the northwest fence along the highway, and 25 feet south of a small apple tree. The station is marked by a gray marble post 5 by 5 by 20 inches, projecting about 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
North gable of old two-story frame house 700 feet away (mark)	83	18.9	east of north
East gable of white three-story frame house one-fourth mile away	63	51.5	west of north
Center of red windmill one-fourth mile away	44	41.6	west of north

NEW YORK.

Albany, Albany County.—The station of 1905 was reoccupied. It is on a hill west of the Loudonville Road, on land of the Van Rensselaer estate, in a field in front of a farmhouse formerly occupied by Mr. Van Wely. It is also 8 feet from the base of a white marble post, 8 by 8 inches, projecting about 3 feet above the ground, in the direction of the west tower of the State capitol. This post marks a point on the Albany city line. The station is 95 feet west from a fence and 100 feet east of the driveway to house formerly occupied by Mr. Van Wely. The following true bearings were determined in 1905:

	°	′	
West tower of capitol, apex (mark)	12	09.8	west of south
Tower of city hall	6	20.9	west of south
St. Joseph's Church spire	0	39.7	west of south

Canandaigua, Ontario County.—The station is in the ellipse of the race track at the fairgrounds at the northeast corner of the city, at the foot of Granger Street. It is 106.5 feet south of the band stand, in line with the west side of this stand, and 127 feet south by east of the southwest corner of the judges' stand. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	°	′	
Spire of cupola on house (mark)	86	09.5	east of north
Foot of flagpole on building at entrance	71	08.0	west of north
Flagpole on Domestic Hall	47	48.0	west of north

Rome, Oneida County.—The station is located on the grounds of the Rome State Custodial Asylum, which is 2 miles west of the city. It is 202 feet northeast of the superintendent's office, and 201.7 feet northwest of the northeast

NEW YORK—Continued.

building of the asylum, and 52 feet north of a large maple tree. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass station marker set in the top and projecting about 2 inches above the ground. The following true bearings were determined:

	° ′	
Church at corner of Washington and West Liberty Streets	34 04.7	east of north
German Catholic Church	32 16.3	east of north
Northeast corner of northeast building at asylum	87 17.1	east of south
Church on West George Street, between James and Washington	36 41.3	east of north
Wind gauge on barn	72 04.2	west of south

Troy, Rensselaer County.—The station is in the southwest corner of Prospect Park, on the hill to the south of Troy. It is 342.5 feet south of the west corner of the veranda of the casino and 58 feet from the driveway measured in a line from the station to the smokestack of Delaware & Hudson shops. A willow tree is 115 feet south and a poplar tree is 88.6 feet northeast of the station. The station is marked by a granite post 6 by 6 by 30 inches, which projects 2 inches above the surface of the ground and is lettered U. S. C. & G. S., 1912. The following true bearings were determined:

	° ′	
Church spire at Albia (mark)	46 57.5	east of south
East spire on Capitol at Albany	37 39.2	west of south
Smokestack on Delaware & Hudson Railroad shops	71 09.2	west of south
Cross on French Catholic Church	84 59.9	west of north

Utica, Oneida County.—The station is in Roscoe Conkling Park, which is west of the city near the cemetery. It is on the hill overlooking the city, near the flagpole and monument erected in memory of Roscoe Conkling. It is 122.5 feet north by east of the flagpole, 170.5 feet east of the small gate in the fence surrounding the cemetery, and 52 feet east of a small tree. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a station marker in the top and projecting about 6 inches above the ground. The following true bearings were determined:

	° ′	
Church spire (mark)	13 25.3	east of north
Tip of railroad water tank	24 32.4	west of north
Church spire in line with south edge of gas tank	31 20.1	east of north
Cross on St. Agnes Church	49 57.0	east of north
Cross on church near Valley Cotton Mills	61 30.9	east of north

Waterloo, Seneca County.—The station is inside the race track at the fair grounds, about one-half mile northeast of the depot of the New York Central Railroad. It is 124 feet south of the southeast corner of the judges' stand and 200 feet from the inside fence around the race track, measured at right angles to the line joining the station and judges' stand. It is 262 feet from the line of trees along the west fence of the grounds. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, set so as to project about 5 inches above the ground, and having a brass station marker in the top. The following true bearings were determined:

	° ′	
Cross on Catholic Church (mark)	71 38.3	west of south
West edge of chimney on brick house	20 34.9	west of south
South edge of chimney on frame house	88 39.0	west of south
Center of base of flagpole on large building at entrance to grounds	8 22.1	west of north

NORTH CAROLINA.

Gatesville, Gates County.—The station of 1899 was reoccupied. As the old station was found to be unsuited for future magnetic work, a new station was established about half a mile west of the center of town, in the drive on the east side of the public school grounds. It is 17.2 feet from the fence to the west, 34.7 feet from the fence to the east, 22.3 feet from an elm southeast of it. It is marked by a stone post, about 8 inches square, lettered U. S. C. & G. S., N. C. G. S., and projecting about 5 inches above the ground. The following true bearings were determined:

	° ′	
East gable of schoolhouse (mark)	73 54.8	west of north
South gable of Mr. Godwin's residence	27 30.0	west of north
West gable of Mr. Riddick's residence	9 07.7	west of north
West gable of Mr. Parker's residence	53 51.2	east of north
Southwest edge of Sheriff Brown's residence	83 21.6	east of south

The north end of a meridian line 342.2 feet long is marked by a similar stone.

Lumberton, Robeson County.—The station of 1899 was reoccupied. As the old station was found to be no longer suitable for a magnetic station, a new station was established in the northwest corner of the grounds surrounding the grade school, about 1,000 feet northeast of the town's center. It is 158.6 feet a little north of west from the northwest

NORTH CAROLINA—Continued.

corner of the school building, and 81.6 feet southeast from the northeast corner of the fence surrounding Dr. Allen's residence. It is marked by a granite post 6 by 6 by 45 inches, projecting about 7 inches above the ground and lettered N. C. G. S. and U. S. G. S., 1899. The following true bearings were determined:

	°	′	
Top of steeple of Zion Church (mark)	30	35.0	east of north
Base of flagstaff on courthouse cupola	41	42.2	west of south
Upper northeast corner of First Baptist Church, under eaves	30	31.1	east of south

A granite post 117 feet distant marks the south end of a meridian line.

Marshall, Madison County.—The old station in the courthouse yard was reoccupied. As it was found to be unsuited for magnetic observations, it was abandoned and a new station was established in the southeast corner of the baseball field on the island in French Broad River. It is 27.5 feet from the nearest part of the fence southeast of it and 22.6 feet from the nearest tree a little west of south of it. The station is marked by a stone post 8 by 8 by 36 inches, lettered U. S. C. & G. S., N. C. G. S., projecting about 5 inches above the ground. The following true bearings were determined:

	°	′	
Spire of Baptist Church (mark)	3	22.8	west of north
Southwest edge of post on extreme southwest corner of residence across the river	9	12.1	east of north
Southwest corner of residence 150 feet east of one named above	17	20.3	east of north

The north end of a meridian line 292 feet long is marked by a similar stone.

Newland, Avery County.—The station is located along the north edge of the public square north of the courthouse at the point marking the end of the west side of a central pathway. It is marked by a concrete post 8 by 8 by 30 inches, tapering to 5 inches square at the top, projecting about 4 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
East gable of hotel three-fourths mile distant (mark)	42	19.2	west of south
West gable of hotel	43	09.3	west of south

The south end of a meridian line 524.5 feet long is marked by a similar stone, which sets in the courthouse lot.

Salisbury, Rowan County.—The station is in Chestnut Hill Cemetery, 17.7 feet due south of the south stone of the meridian line established by Mr. J. B. Baylor in 1898. It is 41.9 feet from the nearest corner of the frame office building, 8.8 feet from the nearest tree, 315.3 feet from the north meridian stone. The station is marked by a stone post 8 inches square, which projects about 6 inches above the ground. The following true bearings were determined in 1905:

	°	′	
Lutheran Church spire (mark)	47	55.8	east of north
Smokestack, Salisbury cotton mill	85	34.1	east of south
North meridian stone	0	01.2	west of north

NORTH DAKOTA.

Casselton, Cass County.—The station is located inside the race track at the fairgrounds, about one-fourth mile southwest of Northern Pacific depot. It is 214.5 feet due west of the brick school building, and nearly on the line projected from the south side of building. From a point 6 feet south of station, the northwest corner of the schoolhouse and the Moravian Church spire are in line. A pump is 123 feet to the southeast, and a ditch 1½ feet deep is 7 paces to north and 11 paces to east of station. It is marked by a limestone post, 6 by 6 by 30 inches, projecting 4 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Presbyterian Church spire (mark)	12	04.5	east of north
Central tip on store "Knight Block, 1889"	23	53.3	east of north
Moravian Church spire	79	38.3	east of north
Tip of Great Northern Railroad water tank	56	45.4	west of south

Devils Lake, Ramsey County.—The station is located on the grounds of the Catholic hospital called "Mercy Hospital," in the northeast corner of town. It is 276.5 feet south-southwest from the southwest corner of the hospital, 67 feet north of the iron fence inclosing the grounds, measured from a point 40 feet from the southwest corner of the grounds. It is 39 feet east of a wire fence along the west side of grounds, and 28 feet east of the center of the driveway. A box elder tree (3 inches in diameter) is 33 feet to the southwest of station and another one, 1 inch in diameter, is

NORTH DAKOTA—Continued.

32.5 feet north of the station. It is marked by a limestone post 6 by 6 by 30 inches, projecting 1 inch above ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′
Catholic Church spire (mark)	56 10.0 west of south
Norwegian Church spire	73 09.7 west of south
Tip of cupola on courthouse	77 03.6 west of south
Flagstaff on new school building	89 06.3 west of north
Cross on Catholic college building	83 25.6 east of north

Lamoure, Lamoure County.—The station is located on the southwest corner of the courthouse grounds, 249.5 feet southwest of the southwest corner of the courthouse, 30 feet north of the north edge of the paved walk, and 11 feet, 27.5 feet and 17 feet distant from small trees, 1 inch in diameter, to the northwest, southwest, and southeast, respectively. It is marked by a limestone post 6 by 6 by 30 inches, with a brass plate in the top, and projecting 4 inches above the ground. The following true bearings were determined:

	° ′
Methodist Church spire (mark)	28 06.4 west of south
Catholic Church cross	0 53.7 west of south
Presbyterian Church spire	46 51.4 west of south

Larimore, Grand Forks County.—The station is located inside the race track at the fairgrounds at the northwest corner of town. It is 231 feet southeast of the judges' stand and 128 feet south of the score board. It is just east of the baseball diamond, and a line from second to third base extended will pass very near station. It is 83 paces north of the race track and 118 paces north of the northeast corner of the only large building on the grounds. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	° ′
Catholic Church cross (mark)	56 22.1 east of south
Courthouse spire	74 09.3 east of south
Tip of railroad water tank	40 22.2 west of south

Lisbon, Ransom County.—The station is located practically in the center of a vacant lot owned by the county of Ransom. The lot is three blocks west of the present courthouse, and is on a hillside too rocky to be cultivated. The station is 143 feet northeast of a telephone pole, near southwest corner of lot, 134 feet south of an elm tree near the house to the north of station, and 206.6 feet west by south of a telephone pole at the northeast corner of the lot. It is marked by a limestone post 6 by 6 by 18 inches, projecting 4 inches above ground, with a station marker in the top. The following true bearings were determined:

	° ′
Catholic college cross (mark)	40 06.2 east of south
Base of flagpole on courthouse	88 21.2 east of south
Flagpole on City Hall over Citizen's Bank	78 03.5 east of south
Episcopal Church spire	41 48.5 east of south
Tip of city water tank	6 47.1 west of south

New Rockford, Eddy County.—The station is located in the southeast corner of the grounds of the Phillips Academy, 277 feet southeast of the southeast corner of the building, 126.7 feet from the wire fence along the east, and 64 feet from the wire fence along the south side of grounds. It is marked by a limestone post 6 by 6 by 30 inches, projecting 3 inches above ground, with a brass station marker in the top. The following true bearings were determined:

	° ′
Schoolhouse flagstaff (mark)	82 18.6 east of south
Dome of courthouse	80 56.6 east of south
West of Great Western Elevator	66 43.7 east of south
Goss's barn cupola	27 19.0 east of north
Windmill on Ellen Watson Poache's place	11 03.0 west of north

Pembina, Pembina County.—The station of 1905 was reoccupied. It is in the southeast corner of the baseball grounds, about 700 feet southward from the junction of the Pembina and Red Rivers and 536 feet from the west side of the county road. The point is 73 feet from the board fence along the east side of the park and 49 paces from the board fence along the south side of the grounds. From a point 6 feet west of the station a flagpole and the Catholic Church spire appear in line. The station is marked by a cement block 6 by 10 by 24 inches, sunk flush with the ground and marked U. S., 1905. The following true bearings were determined in 1905:

	° ′
Icelandic Lutheran Church spire (mark)	41 53.8 west of south
Catholic Church spire	9 56.0 west of north
East dormer gable of Oliver's house	70 26.1 west of south

OHIO.

Marietta, Washington County.—As the station of 1907 was found to be no longer available for a magnetic station, a new one was established on the grounds of the Washington County Agricultural & Mechanical Association, about 1½ miles north of the courthouse, near the Muskingum River. It is within the racing track in the northwest part of the ring, 16 feet from the fence inside the ring, and about 120 feet west of a point where the fence passes from the level of the inside of the ring to the level of the track, about 3 feet lower. It is marked by a white-marble post 21 by 6 by 6 inches, lettered U. S. C. & G. S., and projecting about 4 inches above ground. The following true bearings were determined:

	° ′
East tower of St. Mary's Catholic Church (mark)	54 59.7 east of south
North gable of shed east of race track	75 04.2 east of south
West gable of grand stand	36 24.7 east of south
South gable of white house	00 57.4 west of north

OKLAHOMA.

Altus, Jackson County.—The station is in the southwest corner of the public-school grounds, about one-quarter mile northeast of the center of the town. It is 15.2 feet from the line of a row of trees on the south side of the grounds and 31.5 feet from the line of trees bordering on the southeast side of the walk cutting across the grounds diagonally. The station is marked by a limestone post 6 by 8 by 26 inches with a brass plate in the top and projecting 1 inch above the ground. The following true bearings were determined:

	° ′
North gable of residence one-half mile south of station (mark)	7 42.7 west of south
Water tank adjoining Wigley's residence	19 22.9 west of south
South gable of Chism's residence	45 46.5 west of north
Northwest edge of school	16 02.5 east of north
Southeast edge of school	51 56.6 east of north

A similar stone was set 290 feet due north of the magnetic station to mark the north end of the meridian line.

Durant, Bryan County.—The station is in the southeast section of the grounds of the city park, about one-half mile southwest of the center of the town. It is 60 feet from the center of the road on the south and 80 feet from the center of that on the east. The station is marked by a limestone post 6 by 8 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
West gable of barn due north of station (mark)	1 58.9 east of north
Center of spire of church one-fourth mile northeast of station	9 35.2 east of north
West gable of main building of gin east of station	61 38.4 east of north
North gable of gin, one-fourth mile southeast of station	57 55.3 east of south
Center of tank of cotton gin northwest of station	13 38.8 west of north

The north end of a meridian line is marked by a hardwood post set 300 feet north of the magnetic station. It is to be replaced by a stone monument.

Frederick, Tillman County.—The station is in the southeast corner of the grounds of the high school, about one-fourth mile east of the center of the town. It is 30.0 feet from the inside edge of the cement sidewalk on the east and 27.8 feet from the line of trees on the south. The station is marked by a limestone post 6 by 8 by 32 inches, with a brass magnetic station marker in the top and projecting 1 inch above the ground. The following true bearings were determined:

	° ′
North gable of Gillis's barn (mark)	13 17.3 west of south
Spire of old Methodist Church	81 24.6 west of south
City water tank	83 26.3 west of north
South gable of Wilkin's residence	00 42.4 west of north
Southeast edge of Barton's residence	75 07.7 east of north

Guthrie, Logan County.—The station of 1905 was reoccupied. It is situated in the northwestern part of Highland Park, about 354 feet north-northwest of a small square wooden house. It is 67.3 feet south of the northern bend of new boulevard, and 44.3 feet and 23 feet, respectively, from two oak trees on south side of the boulevard. It is about 390 feet east of a small ravine and about 600 feet north of the eastern terminus of Warner Avenue car line, about 1 mile northeast of business portion of the town. It is marked by a limestone post 6 by 6 by 24 inches, showing 2 inches above the ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined:

	° ′
Cross on Catholic Church (mark)	52 28.3 west of south
Flagpole Logan County high school	72 46.5 west of north
Windmill 1 mile distant	41 24.1 east of north
Center of chimney on square house	38 59.8 east of south
Center of standpipe	19 00.0 east of south

OKLAHOMA—Continued.

Hobart, Kiowa County.—The station is in the northern part of the county fair grounds, about one-half mile due north of the center of town. It is inside the race track about 90 feet from the ditch due west, 85 feet from the tree northeast of the station, and 70 feet from the ditch due north. The station is marked by a marble post 6 by 8 by 27 inches, with a brass magnetic station marker in the top and projecting about 1 inch above the ground. The following true bearings were determined:

	°	′	
South gable of barn northeast of station (mark)	18	56.9	east of north
Cupola on residence, one-half mile southwest of station	4	58.0	west of south
Northwest edge of school southwest of station	16	37.9	west of south
Flagpole on school due west of station	87	52.0	west of south
Railroad tank southeast of station	64	50.8	east of south

Hugo, Choctaw County.—The station is in the western section of the public-school grounds, about one-fourth mile west of the Frisco depot. It is 53 feet from the middle of the road on the west, 165 feet from the cement sidewalk on the south, and 142 feet from the line of telegraph poles on the north. The station is marked by a limestone post 6 by 8 by 27 inches, projecting 1 inch above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of residence, 500 feet south of station (mark)	3	55.9	west of south
East gable of residence southwest of station	23	13.2	west of south
East gable of Moore's residence	58	29.4	west of south
South gable of residence, 500 feet northwest of station	45	35.8	west of north
Southwest gable of school	70	42.5	east of south

Idabel, McCurtain County.—The station is located in a clearing about one-half mile northeast of the center of the town and about one-fourth mile northwest of the public school. It is one block east of the northeast extremity of the main street, the Eastern Hotel being the last building on the northwest side. It is on a triangular shaped piece of land bounded on each side by irregular wagon roads, 24 feet from the center of the road on the northeast, 38 feet from one on the west, and 85 feet from that south of station. The station is marked by a limestone post 6 by 8 by 27 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of residence south of station (mark)	15	27.4	west of south
East gable of residence, 200 feet southwest of station	25	07.4	west of south
South gable of residence northwest of station	83	37.0	west of north
Southwest edge of Eastern Hotel	48	01.0	west of north

Lehigh, Coal County.—The station is near the west edge of the high-school grounds, one-fourth mile north of the town's center. It is 38 feet from the fence on the west edge of the grounds and 78 and 80 feet from the northwest and southwest corners, respectively, of the high-school building. It is marked by a sandstone post 6 by 10 by 30 inches, with a cross and drill hole in the top and sunk just below the surface. The following true bearings were determined:

	°	′	
Apex of cement front of post office (mark)	14	40.2	east of south
Center of chimney on a frame house	63	03.6	west of north
Apex of elevated (wooden) water tank on hill	46	22.4	east of north
Ball on apex of elevated steel tank	70	32.5	east of south
Weather vane on cupola of J. Grilley's house	46	30.0	east of south

Madill, Marshall County.—The station is located in the northwest section of the courthouse grounds, about 1 mile northwest of the town's center. It is 82 feet from the fence across the road on the west and 85 feet from the fence across the road on the north. The frame courthouse is about 200 feet southeast of it. The station is marked by a limestone post 6 by 8 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Gable of residence south of station (mark)	9	24.2	west of south
Southwest edge of courthouse	12	50.8	east of south
Northeast edge of courthouse	26	41.3	east of south
Spire on Lazaras's Building	36	42.2	east of south
Southeast gable of Postmaster Kenedy's residence	84	16.0	east of south

Mangum, Greer County.—The station of 1900 could not be located. A new station was established in the old Crabtree pasture and on a promontory which is three blocks south and two blocks west of the courthouse. It is about 93 feet west of the wire fence on the east, 135 feet south of the projection of north fence of a farm east of station, and 175 feet to the edge of the promonotory measured in line with the fifth prominent object. The station is marked by a

OKLAHOMA—Continued.

limestone post 6 by 8 by 26 inches, with a brass magnetic station marker in the top and projecting 3 inches above the ground. The following true bearings were determined:

	°	′	
New Methodist Church spire (mark)	2	04.8	east of north
Ball on town water tank	32	57.0	east of north
West gable of nearest residence due east of station	89	08.5	east of south
North gable of residence, one-fourth mile southeast of station	22	38.2	east of south
Tower on building, one-half mile northwest of station	66	24.6	west of north

Marietta, Love County.—The station is near the southeast corner of the courthouse yard near the town's center. It is 63.4 feet west of the west edge of a cement walk on the east side of the yard and 109.2 feet south of the south edge of the cement walk leading up to the east entrance of the courthouse. The station is marked by a limestone post 6 by 6 by 30 inches, set flush with the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
Spire on top of cotton-seed house (mark)	17	25.5	west of south
Spire on dome of West school building	81	04.0	west of north
South corner of southwest wing of courthouse (near ground)	53	41.7	west of north
Spire on Mr. S. Westheim's house	5	12.2	east of north
Northwest corner (at top) of Collum brick block	45	08.8	east of north

Norman, Cleveland County.—The station is in the northwest section of the field north of and adjoining the public school and on the south side of the main road leaving the town on the west, about one-half mile from the center of the town. It is 31.9 feet from the fence on the north and 32.3 feet from that on the west. The station is marked by a limestone post 6 by 6 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Southwest edge of school (mark)	0	18.5	east of south
Gable of residence, 500 feet southwest of station	18	46.2	west of south
East gable of barn, 300 feet west of station	68	05.4	west of south
East gable of residence, 300 feet northwest of station	39	31.5	west of north
South gable of residence, one-fourth mile north of station	1	59.6	west of north

Okemah, Okfuskee County.—The station is near the northwest corner of the high-school campus and about one-fourth mile south of the town's center. It is 100 feet southeast of a hydrant, 34 feet west of an elm tree, 40 feet south of a row of trees, and 104 feet north of the northwest corner of the high-school building. It is marked by a Bedford limestone post 6 by 6 by 24 inches, set level with the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
South Methodist Episcopal Church spire (mark)	1	29.5	west of north
Ball on apex of steel water tank	82	15.6	east of north
North Methodist Episcopal Church spire	50	01.2	west of north
Southwest corner of gable brick house	33	26.0	west of north

Pauls Valley, Garvin County.—The station of 1905 was reoccupied. It is located in what is generally known as negro park, or baseball grounds, about 500 feet northwest of the intersection of the railroad and the levee; about 150 feet northeast of the levee at the nearest point; 106 feet from the center of the road on the northwest; 15 feet from the center of that to the southwest and 42 feet from a tree to the southeast. The station is marked by a limestone post 6 by 8 by 30 inches, with a brass cap on top. The following true bearings were determined:

	°	′	
Ball on top of town water tank (mark)	60	42.5	west of north
North edge of smokestack on cotton gin	79	33.3	west of north
West edge of water tank at cotton compress	80	07.2	east of north

Poteau, Le Flore County.—As the old station could not be recovered, a new one was established about one-fourth mile east of the town's center. It is near the center of the open grounds west of the high-school building, between the football and basket-ball grounds. It is 52 feet north of a large tree, 155.8 feet northwest of the north corner of the high-school building, 147.8 feet northwest of the west corner of school building, and is marked by a limestone post 6 by 6 by 24 inches, set flush with the ground, with a brass plate in top. The following true bearings were determined:

	°	′	
East gable of D. J. Moniot's residence, on hill (mark)	45	30.5	west of north
Center of base of cross on Catholic Church spire	69	19.2	east of north
Southwest corner of high-school building, at center of first brick above stone foundation	22	08.8	east of south
Northwest corner of H. McKenna's house, just above porch	85	06.9	west of north

OKLAHOMA—Continued.

A sandstone post 6 by 6 by 20 inches, hole drilled in top, sets 206.3 feet to the south and marks the true meridian. This stone sets flush with the ground and is 10.8 feet east of a hydrant.

Sallisaw, Sequoyah County.—The station is on the south edge of town, near the northwest corner of the high-school grounds. It is 31 feet south of the cement walk on the north side of the grounds, 73 feet from the northwest corner of the high-school building, 61 feet north of a cement walk, and about 8 feet southeast of a maple tree. It is marked by a limestone post 6 by 6 by 24 inches, set flush with the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
Ball at apex of steel water tank (mark)	10	11.2	east of north
First Baptist Church spire	29	21.1	east of north
First Presbyterian Church spire	85	35.0	east of south
Extreme southwest corner of high-school building	32	44.8	east of south
Christian Church spire	25	57.8	west of north

Snyder, Kiowa County.—The station is on the schoolhouse grounds, in the southwest section of the lot south of the main building and across the road. It is about 95 feet from the road on the south, 46 feet from the south bank of a small stream running through the grounds and northeast of the station, and 220 feet from the sidewalk on the east side of the lot. The station is marked by a marble post 6 by 6 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Southeast edge of roof on residence one-fourth mile north of station (mark)	1	13.6	east of north
Northwest edge of school	17	54.8	east of north
Southeast edge of school	31	00.0	east of north
Spire on Methodist Church	73	53.3	east of north
Ball on town water tank	74	46.6	east of south

Sulphur, Murray County.—The station is in the north central section of the national park. It is in the clearing south of the cement walk, about 175 feet from the gate, which is about 3 blocks south of the Artesian Hotel, 61 feet from the wire fence southeast of it, 58 feet from the one south of it, and 52 feet from a large tree northeast of it. It is marked by a limestone post 6 by 8 by 30 inches, with a brass magnetic station marker in the top and projecting 1 inch above the ground. The following true bearings were determined:

	°	′	
Tower on Artesian Hotel (mark)	11	08.3	east of north
Southeast edge of school for blind	48	11.9	east of north
Southeast edge of bank building	3	23.6	east of north
Extreme upper northeast edge of drug store	12	06.7	west of north

Taloga, Dewey County.—The station is in the south end of the fairgrounds, about three-fourths mile south of the courthouse. It is inside the race track 155 feet from the inside fence of the track on the south, 240 feet from the one on the east, and 170 feet from that on the west. The station is marked by a stone post 6 by 8 by 27 inches, with a brass plate in the top and projecting 1 inch above the ground. The following true bearings were determined:

	°	′	
South gable of residence 300 feet east of Methodist Church (mark)	11	57.5	east of north
Spire on Methodist Church	9	18.3	east of north
South gable of barn one-half mile northeast of station	35	53.8	east of north
North gable of residence east of station	85	51.2	east of south
Southwest edge of grand stand	59	30.1	west of north

Tishomingo, Johnston County.—The station is near the southeast corner of the city park and about one-third of a mile north of the town's center. It is 200 feet east of the east side of the elevated steel tank, 105 feet north of a fence, and 154 feet northeast of the northwest corner of a lot belonging to Mr. H. A. Hatcher. It is on a little knoll between two ravines and is marked by a limestone post 6 by 6 by 24 inches, set flush with the ground with a brass plate in the top. The following true bearings were determined:

	°	′	
North edge of elevated steel tank just above platform (mark)	75	49.5	west of north
South edge of elevated steel tank just above platform	81	26.1	west of north
West gable of a house	16	50.6	east of south

Vinita, Craig County.—The station of 1904 and 1910 was reoccupied. It is upon rising ground in the southwestern corner of North Park, almost due west of the town water tank, south of Halsell College, and a short distance (about 200 feet) northeast of the house, which is at this corner of the park, but across the road. It is northeast of the intersection of two roads at the southwest corner of the park, 121 feet from the road to the west and 175 feet from the road to the

OKLAHOMA—Continued.

south. The station is marked by a hard sandstone 6 by 6 by 30 inches, projecting about 4 inches above ground, and having a brass magnetic station marker in the top. The following true bearings were determined in 1912:

	°	′	
Bell tower on public school	15	46.6	west of south
South Methodist Episcopal Church steeple (mark)	18	42.1	west of south
Ornament on east gable of residence 500 feet southwest of station	58	55.8	west of south
Town water tank	66	05.7	east of south
Spire on Catholic Church	56	47.9	east of south

Westville, Adair County.—The station is situated on the high-school grounds near the southwest corner of town. It is 94 feet from the northwest corner of the high-school building, 93 feet from the southwest corner of the high school, and 115 feet north of a wire fence on the south side of the street. It is marked by a limestone post 6 by 6 by 30 inches, set flush with the ground with a brass plate in the top. The following true bearings were determined:

	°	′	
Southwest corner brick chimney on J. H. Caldwell's house (mark)	49	22.0	east of south
Southeast corner of central chimney on P. V. Craig's brick house	66	37.9	west of south
North gable of B. D. Wilson's house	89	58.6	west of south
Northwest corner of school building at bottom of bricks	67	23.8	east of north

Wilburton, Latimer County.—The station is on the high-school grounds, on the hill, about one-half mile north of the town's center. It is near the highest ridge of the hill, 136 feet west of the west side of the school building and 22 feet north of a steep precipice. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 2 inches above ground with brass plate in the top. The following true bearings were determined:

	°	′	
West edge of stone bearing word "Joseph's," near top of front of Joseph's store (mark)	0	34.4	east of south
North gable of C. H. Hudson's house	15	45.7	west of south
Southeast corner of Degnen's & McConnell's brick coal office	67	29.6	west of south
Northwest corner of cement basement of high-school building	77	44.4	east of north

PENNSYLVANIA.

Kennett Square, Chester County.—Observations were made on the westernmost one of two large mounds caused by a quarry which had been worked out and abandoned many years ago. The mound is situated about 3 miles east of Avondale, about 1¼ miles west of Kennett Square, and about 500 feet south of the track of the Philadelphia, Baltimore & Washington Railroad. The station is on the western part of the mound, about 27 feet south of the top edge of the bank near the highest part of the mound, nearly opposite the eighth fence post west of a gate in the fence just to the north; about 100 feet west of a group of sycamore trees; 104 feet from the middle one of the nearest three of the above trees, which is 12 inches in diameter; and 149 feet north of a small distorted apple tree, across a gully. The station is marked by a marble post 6 by 7 by 18 inches, projecting 2 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
East gable of white frame shed 600 feet away (mark)	26	16.7	west of south
South gable of large frame barn nearly one-half mile away	61	36.8	west of north
West gable of stone house on main highway	21	04.8	east of north
West gable of large white barn about 1,000 feet away	15	13.0	west of north

Media, Delaware County.—Observations were made in the grounds of the Rose Tree Hunt Club, about 1½ miles northwest of the center of town in the northeastern part of the grounds, near the top of a small elevation around which the running track passes. The station is 66 feet southeast of the fence inside the track, 178 feet north of a post marked "one mile," 189 feet northwest of an old wild cherry tree about 48 inches in diameter, and 128 feet north-northwest of a tree 24 inches in diameter. The station is marked by a stone post 6 by 6 by 18 inches, set flush with the ground and having in its top a brass magnetic station marker. The following true bearings were determined:

	°	′	
West gable of small stone house near woods, about one-fourth mile away (mark)	10	16.6	east of south
East gable of southernmost barn on grounds	12	45.8	west of south
East gable of grand stand	34	19.3	west of south
Northwest gable of large white three-story house, about one-half mile away	22	06.2	east of north

Mifflintown, Juniata County.—The station is in the cemetery at the north of the town. It is on the hill about 5 feet to the east of the main road through the cemetery, 37 feet east of the northeast corner of the Wilson monument, and 33 feet east of the southeast corner of Beale monument. Trees to the north by east, southeast, and southwest, are

PENNSYLVANIA—Continued.

distant, respectively, 24 feet, 15.4 feet, and 27 feet. It is marked by a marble post 6 by 6 by 30 inches, projecting about 4 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	° ′
Courthouse spire (mark)	3 43.1 west of south
Northeast corner of schoolhouse	45 00.5 east of south
Lutheran Church spire	8 04.3 east of south
Presbyterian Church spire	3 22.4 east of south
Cupola on Parker's barn	38 26.5 west of south

New Bloomfield, Perry County.—The station is on the grounds of the New Bloomfield Academy, 125 feet east of the southeast corner of the boys' dormitory and about 200 feet south of the girls' dormitory and dwelling house. It is 14.7 feet west of the path leading to the girls' dormitory and 42.6 feet from a tree to the south of station. It is marked by a limestone post 6 by 8 by 30 inches, lettered U. S. C. & G. S., 1912, and projecting about 4 inches above ground. The following true bearings were determined:

	° ′
Courthouse spire (mark)	44 34.0 east of south
Church spire	18 59.2 east of south
Cupola on schoolhouse	1 01.0 west of south

Williamsport, Lycoming County.—The station of 1901 was reoccupied. It is the south stone of the meridian line established in Brandon Park by the United States Geological Survey. The line is about 500 feet long and is marked by stone posts 5 by 8 inches in cross section. These posts project about 4 inches above the surface of the ground. The south stone is about 100 feet east, slightly north, of a large granite drinking fountain. The north stone of the meridian line was used as the mark.

PHILIPPINE ISLANDS.

Antipolo, Luzon Island.—Observations were made at the magnetic observatory maintained by the Jesuits.

Aparri, Luzon Island.—The station is in about the center of the town in the southwestern corner of the plaza, which extends to the southwest from the Catholic Church. It is 154.3 feet southeast of the southeast corner of the fence surrounding the customhouse, 170.2 feet southwest of the southwest corner of the west extension of the Catholic Church, 162 feet northeast from the northwest corner of the Aparri Cacayan building, and 141.3 feet southwest of the center of the base of a wooden cross about 50 feet west of the Catholic Church. The station is marked by a neck of a dark glass bottle set about 7 inches below the ground, and supported by five other glass bottles set horizontally with their necks against the first. The following true bearings were determined:

	° ′
Ornamental point at top of northwest corner of porch of Masonic Temple (mark)	55 08.6 east of south
Base of spire on wooden tower at southeast corner of municipal building	21 49.4 west of south
Northwest lower edge of cross on Catholic Church	67 51.2 east of north
Northwest lower edge of cross on bell tower of Catholic Church	81 12.2 east of north

Dumaguete, Negros Island.—Magnetic observations were made at the triangulation station Dum, which is on the southeast face of Dumaguete Point, at the edge of the sand and about 1 foot above high water. The station is marked by a bamboo pole 3½ feet long, filled with cement, projecting about 10 inches above the surface of the sand. A triangle of nails was driven in the trunk of a coconut tree as a reference mark. The station is 87 feet from this tree in the direction of the south end of Siquijor Island.

Jolo, Jolo Island.—Magnetic observations were made at triangulation station Pang, which is on the southwest point of Pangasinan Island, at the entrance to the channel between Pangasinan and Morongas Islands. The station is about one-third of a mile from the entrance to a lagoon where there is a Moro village. It is on a flat coral beach, about 15 feet from high water and about 2 feet above it. It is marked by a cement monument projecting about 4 inches above the coral. The station is 35.5 feet west of a small blazed tree.

Manila, Luzon Island.—The station is in the southwestern part of the new park at Pasay. It is near the corner of Calle Real and Calle Vito Cruz, about 2 miles southeast from the town's center. It is 209 feet a little west of north from a city survey monument on the south side of the Calle Vito Cruz, about 650 feet east from the Calle Real, and 201.5 feet northwest from a similar city survey monument about 143 feet northeast from the first on the north side of the Calle Vito Cruz. The station is marked by a cement post 8 by 8 by 36 inches, sunk 1 foot below the surface and marked U. S. C. & G. S., 1912, with a brass rod set in the top. The following true bearings were determined:

	° ′
Top of east tower of Bureau of Science (mark)	14 03.4 west of north
South point at top of roof of College of Medicine and Surgery	19 06.9 west of north
Top of a water tank	56 00.0 west of north

PHILIPPINE ISLANDS—Continued.

A cement post 8 by 8 by 36 inches, lettered U. S. C. & G. S., 1912, and sunk 1 foot befow the surface, marks the north end of a meridian line about 588 feet long.

Suitable surface marks are to be supplied by the city engineer.

Tuguegarao, Luzon Island.—The station is in the northeastern corner of the constabulary reservation, northeast from the cuartel and about 2,000 feet southwest from the church. It is 58.3 feet west of the reservation boundary fence on the east, 74.4 feet south from the fence across the road to the north, 153.8 feet northeast from the center of the base of the constabulary flagpole and 255.8 feet east from the northeast corner of the constabulary cuartel. The station is marked by a neck of a dark-glass bottle buried about 6 inches below the surface of the ground. The following true bearings were determined:

	° ′
Base of cross on tower of Tuguegarao Church (mark)	52 06.7 east of north
Southeast gable of a large warehouse with a metallic roof (across both rivers)	26 28.5 west of south

Vigan, Luzon Island.—The station is on a low ridge of hills, about 2,000 feet southwest from the old Vigan Cemetery, on the east side of the road which is a continuation of Lincoln Street, and about three-fourths mile southwest from the town's center. It is on the top of the ridge and 64 feet west from the highest point. The above road runs south between the ridge and a small cemetery about 1,200 feet northwest from the station. The road at that place takes a curve to the east around the ridge of hills. The station is 128 feet north from the center of the road to the south, about 147 feet east from the center of the road to the west, and 29.7 feet almost due north from the center of the trunk of a small lone tree about 3 inches in diamter, which grows clusters of long leaves similar to that of a magnolia tree, with seven leaves to a cluster. The station is marked by a granite post 3 by 15 by 15 inches, set with the top flush with the ground, and having a small hole about one-fourth of an inch deep in the top. The following true bearings were determined:

	° ′
Cross at top of bell tower of Bantay Church (mark)	23 47.1 east of north
Spire of bell tower of Vigan Church	25 08.0 east of north
Center of the statue on the rear dome of chapel in Vigan Cemetery	19 53.7 east of north
Base of a white cross on a blue dome on a monument in cemetery to northwest	45 03.2 west of north

Zamboanga, Mindanao Island.—The station of 1907 was reoccupied. It is identical with the triangulation station Santa Cruz on Great Santa Cruz Island, just opposite Zamboanga. It is marked by a cement monument 5 by 5 by 24 inches, projecting 5 inches above the ground and lettered U. S. C. S. The flagstaff on the municipal building bears 20° 19′.4 east of true north.

PORTO RICO.

Aibonita.—The station is about 1 mile south of Aibonita along the military road and 150 feet to the east of it. It is 18 feet northwest of a bowlder 3 feet high and is marked by a cement post, 6 by 6 inches, lettered U. S. C. G. S., 1911. The spire of the cathedral at Aibonita bears 27° 27.′0 west of true north.

Caguas.—The station is about 2½ miles south of Caguas on a hillside opposite "Castillo No. 11, kms. 31–33." 150 feet from the center of the military road from Ponce to San Juan. The spire of the Catholic Cathedral in Caguas bears 8° 14′.3 east of true south. The middle of the ridge of the roof of the "Camineros" bears 67° 42′.7 west of true south.

Mayaguez.—The station of 1909 at Algorrobo Point was reoccupied. It is about 2 miles north of Mayaguez on a nearly level plateau about 30 feet in elevation. This plateau is surrounded on the north and east sides by a grove of coconuts and on the other two sides by Mayaguez Bay. On the extreme end of Algorrobo Point, about 50 feet from the plateau and separated from it by a narrow gorge through which a road passes, is a large rock of volcanic origin of nearly equal elevation with the plateau. The magnetic station is near the southeast corner of the plateau, 5 feet south from a small mango tree and about 10 feet from the edge of the cliff. It is marked by a square cement block, projecting about 5 inches above ground and lettered U. S. C. & G. S., 1909. The following true bearings were determined:

	° ′
West end of iron pier, Mayaguez	37 19.6 east of south
Rear range light, Mayaguez	42 35.9 east of south

Obispo Cayo.—The station of 1906 was reoccupied. It is on the northeast shore of Obispo Cayo, about 10 paces from the water and 12 feet from high-water mark. It is about the middle of an opening in the mangroves, which extends for about 60 feet along the beach. The horizon from Cape San Juan Lighthouse to Palominos Island is visible from the station. The station is marked by an oak stake driven flush with the ground and covered with sand. The following true bearings were determined in 1906:

	° ′
Cape San Juan Lighthouse (mark)	1 57.0 east of north
Hydrographic signal Nob	49 58.1 east of north
Hydrographic signal Palominos	81 58.2 east of north

PORTO RICO—Continued.

Ponce.—The station of 1901 was reoccupied. It is located on a high hill about 1 mile north of the Plaza of Ponce. It is in a pasture on the highest part of the eastern end of the hill, almost in line with the street running north and south on the west side of the Plaza Principal. The exact point is marked by a coast survey brass station mark set in a grouting of cement and stone, its top even with the surface of the ground. The mark or range used was Cardona Lighthouse and bears 13° 19′ west of true south.

San Juan South Base.—The station of 1909 was reoccupied. It is 50 feet from the South Base triangulation station, in the direction of Morro Lighthouse, within a few feet of the point occupied in 1904 and 1908. The station is marked by a cement stone with a drill hole in its center. This stone projects 4 or 5 inches above the ground and is lettered U. S. C. & G. S., 1905. The following true bearing was determined:

	° ′
Morro Lighthouse	37 09.4 east of north

SOUTH CAROLINA.

Abbeville, Abbeville County.—The station is located on the fair grounds, about half a mile northeast of the center of the town. It is on the area inclosed by the race track, 136.5 feet from the fence on the east side, 243.6 feet from the fence on the north end, and 225 feet from the northeast corner of the grand stand. It is marked by a Bedford limestone post 6 by 6 by 26 inches, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
West edge of large chimney of Abbeville cotton mill	31 54.6 west of south
East edge of cupola on Archie Douglas farmhouse	45 58.8 east of south
Spire of Trinity Episcopal Church (mark)	87 28.4 west of north

The south end of the meridian line is marked by a stone post 6 by 8 by 36 inches, set 576.7 feet south of the magnetic station. The stone projects about 8 inches above the ground.

Bishopville, Lee County.—The station is located on the property of L. A. Moore, about one-half mile southeast of the center of the village. It is 137.5 feet from the fence, running along the main road, and 22.5 feet east by south of a large sweet gum tree. A black gum tree is 56 feet southeast and a pine tree 54.5 feet southwest of the station. It is 75.3 feet east of a fence running along the west side of the pasture, 180 feet from the fence on the south side, and 86 feet from the fence on the east side which runs parallel to a small stream. The station is marked by Bedford limestone post 6 by 6 by 30 inches with a brass magnetic station plate in the top. The following true bearings were determined:

	° ′
Spire on Colored Baptist Church (mark)	86 53.3 west of south
Point on tower of public schoolhouse	40 03.4 west of south
Northwest corner of Julian Dixon's residence	18 20.0 east of north
Northeast corner of J. Stuckey's residence	67 18.4 west of south

A stone post 6 by 8 by 24 inches, projecting about 3 inches above the ground, was set 316.5 feet south of the magnetic station to mark the south end of a meridian line.

Chester, Chester County.—The station is on the fair grounds, about one-half mile north of the center of the city. It is on the area inclosed by the race track, 170 feet from the fence on the west end, 381 feet from the fence on the north side, 146.5 feet from the fence on the south side, 237 feet from the northwest corner of the grand stand, and 107 feet from a tree which bears about north by west. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 1 inch above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Spire of Colored Methodist Church (mark)	66 04.7 east of south
South side of tank of Eureka cotton mill	84 43.8 east of north
Southwest corner of F. D. Gregor's barn	24 40.8 west of north
Southeast column of G. W. Ferguson's residence	7 16.1 west of south

Chesterfield, Chesterfield County.—The station is on the Chesterfield public school grounds, about one-half mile west of the center of the village. It is 254.0 feet south by west from the southwest corner of the school building, 226.1 feet from the fence on the east side of the grounds, and 82.5 feet from the school property line on the west side. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass plate in the top. The following true bearings were determined:

	° ′
Spire of St. Paul's Methodist Church (mark)	72 21.6 east of south
Southeast corner of public school building	41 16.3 east of north
Southwest corner of Felix Cannon's residence	73 17.3 west of north
Spire on roof of Rev. Fundeburg's residence	68 24.9 west of south

SOUTH CAROLINA—Continued.

A granite post 6 by 8 by 36 inches, projecting about 1 inch above the ground, was set 446 feet south of the magnetic station to mark the south end of a meridian line. It is near the north edge of the sidewalk on Main Street.

Dillon, Dillon County.—The station is on the grounds of the Dillon Race Track Association, about 1 mile southeast of the center of the city. It is on the area inclosed by the race track, near the south end, 153 feet from the fence on the south side, 161 feet from the fence on the east side, and 412.5 feet from the southeast corner of the grand stand. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire of Baptist Church (mark)	53	35.4	west of north
Top of Southern Oil Co.'s water tank	52	05.7	west of north
Spire of African Church	79	18.9	west of north
Northwest corner of D. McLaurin's residence	80	26.1	west of south

A Bedford stone post 4 by 6 by 24 inches, was set 342.5 feet north of the magnetic station to mark the true meridian.

Edgefield, Edgefield County.—The station is on the fair grounds, about one-half mile northwest of the center of the city. It is on the area inclosed by the race track, 181.7 feet from the fence on the north side of the grounds, 224 feet from the northeast corner of the main exhibition building on the west side of the grounds, 148 feet from the northwest corner of the barn on the east side, and 171 feet from the starter's observing stand. The following true bearings were determined:

	°	′	
North edge of top of large chimney of Beaver Dam cotton mill	87	02.0	west of north
Spire of Colored Methodist Church	37	01.3	west of north
Northwest corner of Green's farmhouse	20	30.5	east of south
Spire of Presbyterian Church (mark)	44	41.5	west of north

A stone 12 by 12 by 24 inches was set 436 feet south of the magnetic station to mark a meridian line.

Florence, Florence County.—The station of 1908 was reoccupied. It is on the grounds of the Industrial School, 253.5 feet north of the school building.

The old station being unsuitable for future magnetic work, a new station was established on the experimental farm of Clemson College, about 1½ miles northwest of the center of the city. It is about 1,200 feet southwest of the Florence-Darlington branch of the Atlantic Coast Line Railroad. It is about 30 feet west of a road which runs across the farm in a general north-south direction, 333 feet from a fence on the west side of the farm, and 452.5 feet east by south from the southeast corner of Charles Brown's residence. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire of Baptist Church (mark)	35	45.0	east of south
Spire of county courthouse	42	33.9	east of south
Top of city water tank	44	52.5	east of south
Spire of Colored Trinity Church	48	06.3	east of south
South corner post on porch of M. Gregg's house	87	58.1	east of south

A meridian stone was set 500 feet south of the magnetic station. The stone is of cement, 6 by 6 by 36 inches, and projects about 5 inches above ground.

Gaffney, Cherokee County.—The station is located on the grounds of Limestone College, about a mile southeast of the center of the city. It is about 150 feet south of the corner of O'Neal and Griffith Streets, 805.4 feet from the southwest corner of the Winnie Davis Hall of History, 1,560 feet from the William Curtis monument, and 2,604 feet from R. O. Sams' farmhouse. The following true bearings were determined:

	°	′	
Southeast corner of Winnie Davis Hall of History	38	16.1	east of north
North corner of R. O. Sams' farmhouse	3	23.8	west of south
South edge of Curtis monument in front of brick church	67	12.9	east of south

A stone was set 300 feet south of the magnetic station to mark the south end of a meridian line.

Greenville, Greenville County.—The station is located in Springwood Cemetery, on the northeast side, 4 feet and 8 inches from the marble gravestone of J. Wattie Bromlett. It is 614 feet east of the Park School, 214 feet west of a pond, 100 feet northeast of a large oak tree, about 1,000 feet northeast of the Ottaray Hotel, and about 1,900 feet from the Christ Episcopal Church. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass plate in the top. The following true bearings were determined:

	°	′	
North edge of roof of Ottaray Hotel	53	28.8	west of south
Southeast edge of schoolhouse (Park School)	86	44.2	west of north
Christ Episcopal Church spire (mark)	3	14.3	west of south

SOUTH CAROLINA—Continued.

The south end of the meridian line is marked by a 7 by 7 by 15 inch brown hard Indiana sandstone, set 561 feet south of the magnetic station.

Laurens, Laurens County.—The station is about a third of a mile northwest of the center of the city, on the grounds of the graded school, corner of Church and Laurens Streets. It is 242.5 feet north of the schoolhouse, 136 feet from the fence on the west side and 255.6 feet from the fence on the east side of the grounds. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire of First Presbyterian Church (mark)	19	22.8	west of south
Northeast corner of Colored Masonic Hall	49	22.7	east of south
Left edge of top of large brick chimney of Watt's cotton mill	48	30.1	east of north

A meridian stone was set about 1,000 feet north of the magnetic station.

Lexington, Lexington County.—The station is on the grounds of the new high school, about half a mile north of the town's center. It is 49 feet from the north edge of the wagon road which runs along the south edge of the grounds, 290 feet southeast of the southeast corner of the public school buildings, 106.8 feet from the southeast corner post of the school grounds, and 147.5 feet from the northwest corner of Jacob Randall's residence. It is at the east edge of a thicket of small trees. The station is marked by a granite post 6 by 6 by 30 inches, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire of old Methodist Church (mark)	6	11.2	west of south
Spire of new Methodist Church	3	58.9	west of south
Center of main spire of Lutheran Church	51	22.5	west of south
Center of rod on flagpole on new high school	42	44.3	west of north

St. Matthews, Calhoun County.—The station is located on the tract recently purchased by the Calhoun County Fair Association. It is about three-fourths of a mile west of the center of the village, on the area that is expected to be inclosed by the race track. It is 191 feet north by east from a walnut tree, 773 feet from the street on the south side of the tract, 536 feet from that on the east side, 600 feet from that on the north side, and 293 feet from the path at the west edge of the tract. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, having in the top a brass station marker, and projecting 2 inches above the ground. The following true bearings were determined:

	°	′	
Top of city water tank (mark)	46	30.5	east of south
Base of spire of old Methodist Church	71	30.5	east of south
Southeast post on porch of D. D. Bike's house	20	49.0	east of north
Southeast corner of residence of Felder Wise	68	40.7	west of south

A cement post 7 by 7 by 24 inches, projecting about 2 inches above the ground, was set 300 feet due south of the magnetic station.

Saluda, Saluda County.—The station is on the grounds of the public school, about a quarter of a mile southwest of the center of the village. It is 115.5 feet west of the outside edge of the sidewalk on Jefferson Street, 108.5 feet from the fence on the south side of the grounds, 190.5 feet from the southeast corner of the schoolhouse, and 46.5 feet from a white oak tree which bears about west of south. It is marked by a granite post 6 by 6 by 24 inches, having a brass station marker in the top. The following true bearings were determined:

	°	′	
Spire on Mount Pleasant Lutheran Church (mark)	27	25.1	west of north
Southeast corner of Saluda Mercantile Co.'s store	38	24.3	east of north
Northeast corner of residence of Alvin Etheredge (edge of pillar)	31	42.5	east of south
Northwest corner of Saluda public school	77	25.7	west of north

A granite bowlder, faced on top, 325 feet north of the magnetic station, marks the north end of a meridian line.

Winnsboro, Fairfield County.—The station is on the grounds of the public school, about a quarter of a mile northeast of the center of the village. It is 279.0 feet northwest of the northwest corner of the school building, and 65.8 feet southeast of the north meridian stone of the United States Geological Survey. It is 119 feet from the fence across the street on the north side of the grounds, 121 feet from the fence on the east side, and 291.5 feet from the base stone of the Hudson monument. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, having a brass magnetic station plate in the top. The following true bearings were determined:

	°	′	
Spire of Colored Baptist Church (mark)	74	24.7	west of south
White Baptist Church (point on tower)	34	16.4	west of south
Southwest corner of high school building	40	30.2	east of south
Southwest corner of J. E. McDonald, jr.'s, residence	69	51.9	east of north

SOUTH DAKOTA.

Britton, Marshall County.—The station is 140.7 feet northwest of the northwest corner of the courthouse; 27 feet and 44 feet from the cement walks to the north and east, respectively. It is 9 feet from the second tree (ash tree) from the north side, and 14 feet due east of the third tree in the outer row. It is marked by a Kesota limestone post 6 by 6 by 30 inches, set flush with the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Flagpole on Farmer's Cooperative Grain Co. elevator (mark)	84	24.3	east of north
Base of flagpole on Commercial Hotel (near depot)	89	38.7	east of north
Norwegian Lutheran Church spire	13	50.8	east of north
Base of flagpole on Commercial Hotel (up town)	67	10.3	east of north

Canton, Lincoln County.—The station is 232 feet north northwest of the main building of Augustana College measured from the northwest corner of the building and is 155.4 feet northwest of the three-story frame building on the campus. It is 32 feet east and 116 feet south of a row of elm trees on the west and north sides of the ground, respectively. A maple tree is 14½ feet west of station and another one 9½ feet to the north. It is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a station marker in the top. The following true bearings were determined:

	°	′	
Tip of water tank at Orphan's Home (mark)	15	45.9	east of south
Tip of water tank at United States Indian Asylum	89	30.8	east of north
East edge of city stand tower	40	43.7	west of north
Southwest corner of main college building	24	43.1	east of south

Clark, Clark County.—The station is located 233 feet southwest of the southwest corner of the courthouse in the southwest corner of the grounds, and the corner tree is 7½ feet distant to the northwest and another tree is 9½ feet to the northeast of station. It is marked by a limestone post 6 by 6 by 30 inches, with a brass station marker in the top, and projecting 2 inches above the ground. The following true bearings were determined:

	°	′	
Cross on Catholic Church (mark)	38	36.8	east of south
Base of flagpole on schoolhouse	60	00.3	east of south
Northwest corner of courthouse	71	22.9	east of north

Elk Point, Union County.—The station is near the southwest corner of the fair grounds, about one-fourth mile north of the town's center. It is 19 feet north of a large box-elder tree, 28 feet east of a second box-elder tree, 104 feet east of the west fence, 113 feet north of the south fence, and 150 feet west of the west side of the street leading into the grounds. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire on courthouse tower (mark)	31	07.7	west of south
North gable of farmer's elevator	24	38.2	west of south
Northwest corner of cottage at southeast corner of fair grounds	65	14.8	east of south
South gable of distant barn	8	12.2	west of north
North gable of house southwest of fair grounds	67	04.8	west of south

Fairfax, Gregory County.—The station is in the town park, about three blocks north of the town's center. It is near the north end of the park midway between the fifth and sixth rows of trees from the north and south street leading to town. It is 36.8 feet south of the north fence, 51.3 feet east from the west fence, 91.2 feet west of the east fence. The station is marked by a Bedford limestone post 6 by 6 by 24 inches, with a brass plate in the top and projecting 2 inches above the ground. The following true bearings were determined:

	°	′	
Spire on Methodist Church (mark)	52	09.9	west of south
Spire on German Lutheran Church	31	36.3	west of south
Left edge of north brick chimney on C. & N. W. R. R. Station	68	51.5	east of south
West gable, grain elevator	59	01.5	east of north
East gable of house	48	59.8	west of north

The south end of the meridian line is marked by a stone post set 287.6 feet to the south of the magnetic station.

Huron, Beadle County.—The station of 1900 was reoccupied. Observations were made over the south stone of the meridian line, which is in the courthouse grounds near the south fence. The top of this stone is in the shape of a truncated pyramid 24 by 24 inches at the base and 12 by 12 inches at the top, projecting 1 foot above the ground and lettered U. S. C. & G. S. The north stone is similar and is 338.5 feet distant. The following true bearing was determined in 1907:

	°	′	
North meridian stone	00	03.1	west of north

SOUTH DAKOTA—Continued.

Parker, Turner County.—The station is located in the southeast corner of the Protestant Cemetery, 29 feet from the south fence and 163¾ feet from the east fence. This cemetery is on a rise of ground about 1 mile north of the city. The station is in the center of a north and south driveway. It is marked by a limestone post 6 by 6 by 30 inches, projecting 2 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	6	32.2	east of south
German Methodist Church spire	17	11.4	east of south
Flagpole on Citizen's Bank Building	20	16.7	east of south
Tip of cupola on East School Building	1	37.1	west of south

Yankton, Yankton County.—The station of 1905 amd 1909, on Observatory Hill of the Yankton College grounds, about three-fourths mile north of the town's center, was reoccupied. It is 205.1 feet southeast from the southeast corner of the observatory, 46.1 feet northwest of an elm tree, and 860 feet south of the main hall of the college. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, projecting 4 inches above ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1912:

	°	′	
Pinnacle on southeast corner of tower just below dome on new courthouse (mark)	25	28.6	west of south
Flagpole on old courthouse	7	11.9	west of south
Base of spire, southwest corner of main college hall	5	09.9	east of north
Left edge of observatory at top of bricks	56	53.6	west of north
Cross on Catholic Church spire	0	06.8	east of south

TENNESSEE.

Byrdstown, Pickett County.—The station is located in the northeast corner of a small park, one block south of the schoolhouse. It is 30.3 feet west of the east rail fence, 44.3 feet south of the north rail fence, and 46.3 feet southeast of a large oak tree. The station is marked by an irregular shaped stone 5 by 12 by 24 inches, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire on courthouse (mark)	11	21.8	west of south
Northeast corner of Dr. Craig's storehouse	4	07.2	west of south
Northeast corner of jail	15	58.1	west of south
Southeast corner of J. D. Reagan's house	81	12.7	west of north

Carthage, Smith County.—The station is located in the courthouse yard, 105 feet west of the courthouse, 32 feet east of the west fence, and 79.6 feet south of the north fence. The station is marked by a marble post 6 by 6 by 30 inches, projecting 4 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
West edge of west chimney on Wm. Baker's house (mark)	9	51.5	west of south
Southwest corner colored church	42	05.2	west of north
Southeast corner of First National Bank	57	01.4	east of north
Southwest corner of courthouse	49	45.2	east of south

Celina, Clay County.—The station is located on the county fair grounds, 157 feet from the north fence, 143.3 feet from the inner east fence, and 192 feet north of a small ticket office near the exhibition ring. The station is marked by a limestone post 6 by 8 by 26 inches, projecting about 4 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	49	36.4	east of north
Christian Church spire	25	42.5	east of north
Methodist Church spire	58	10.6	east of north
Band stand flagpole	36	58.2	west of south

Dover, Stewart County.—The station is located in the southwest corner of the school grounds. It is 106 feet southwest of the southwest corner of the schoolhouse, 96 feet south of the north fence, and 15 feet east of the west boundary fence. A large oak tree is 60 feet southeast of the station. The station is marked by an irregular shaped bowlder 5 by 8 by 12 inches, with a cross roughly chiseled across it and is flush with the surface of the ground. The following true bearings were determined:

	°	′	
East edge of east chimney on Mr. Howe's house (mark)	21	46.4	east of north
Southeast corner of schoolhouse	58	51.7	east of north
Southwest corner of Lewis's house, under eaves	70	03.7	east of north
Center shaft of windmill to northwest	72	52.1	west of north

TENNESSEE—Continued.

Elora, Lincoln County.—The station is in the southwest corner of the public-school grounds, about one-half mile northwest of the center of the town. It is 21 feet from the wood fence to the south, 18 feet from the fence to the west, and 66 feet from the southwest edge of the school building. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground, with a brass plate in the top. The following true bearings were determined:

	°	′	
West gable of residence 500 feet distant (mark)	65	18.4	east of south
Northwest edge of Park's residence	67	07.9	east of north
Southeast edge of school	48	00.9	east of north
Northwest edge of school	12	22.5	east of north

Fayetteville, Lincoln County.—The station is located at the summit of a hill about one-half mile north of the center of the town. The hill is apparently of pure granite rock and is about 400 feet high. The station is 65 feet from the wire fence to the south, 64 feet from that to the west, 94 feet from that to the east, and 112 feet from the stone wall to the north. It is marked by a limestone post 8 by 8 by 27 inches, projecting 10 inches above the ground, with a brass station marker set in the top. The following true bearings were determined:

	°	′	
Spire of Methodist Episcopal Church (mark)	10	22.9	east of south
Spire of Presbyterian Church	5	56.4	east of south
North gable of high school	1	51.8	east of south
Courthouse spire	5	42.1	west of south
Southwest corner of sanitarium	43	08.7	west of south

Franklin, Williamson County.—The station of 1909 was recovered. In order to secure a meridian line of suitable length, the stone marking the old station was removed and placed about 50 feet south of its original position. It is in the southwest corner of the grounds surrounding the People's Academy, about a mile a little west of south of the center of the town. It is 18.3 feet from the fence to the south and 336 feet from the north stone of the meridian line. The new station is marked by a blue limestone post 6 by 8 by 35 inches, projecting about 4 inches above the ground and having a brass station marker set in the top. The following true bearings were determined:

	°	′	
Spire on cupola of parsonage of Methodist Church (mark)	60	58.2	east of north
Upper north gable of residence, 250 yards south of college grounds	27	39.6	east of south
Southeast edge of main high-school building	79	51.0	east of north
West gable of residence	10	40.4	west of north

Gainesboro, Jackson County.—The station is located in the southeast corner of the new schoolhouse grounds. It is 152 feet southeast of the southeast corner of the schoolhouse, 37.6 feet from the rock fence on the east and 27.2 feet from the rock fence on the south. It is marked by a limestone post 4 by 12 by 30 inches, projecting about 4 inches, with a cross in the top. The following true bearings were determined:

	°	′	
Northeast corner of Nerthone house (mark)	36	40.2	east of south
Southwest corner of cupola on old schoolhouse	17	42.2	west of north
Southwest corner of new schoolhouse	57	12.6	west of north

Hartsville, Trousdale County.—The station is located at the summit of a small hill, about one-half mile east of the town and about one-fourth mile north of the road leaving the town on the east. It is 187 feet from the wire fence east of it and 290 feet from a 2½-foot brick wall to the south of it. A limestone post 10 by 10 by 30 inches, projecting 4 inches above ground and having a brass magnetic station marker in the top, marks the exact spot. The following true bearings were determined:

	°	′	
Gable of Hale's residence (mark)	0	02.7	east of south
Presbyterian Church spire	56	10.9	west of south
Methodist Church spire	76	20.0	west of south
East gable of Franklin's barn	8	25.6	west of north
West gable of Nealy's residence	54	55.5	east of south

Humboldt, Gibson County.—The station is located inside the race track at the Tri-County Fairgrounds. It is 126 feet east of the judge's stand and 143 feet northwest of the most westerly tree of three cedar trees to the southeast of the judge's stand. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass station marker in the top and set about level with the ground. The following true bearings were determined:

	°	′	
Methodist Church spire (mark)	28	47.9	west of north
Cumberland Presbyterian church spire	15	16.0	west of north
Dome of schoolhouse	19	21.5	east of north

TENNESSEE—Continued.

Lafayette, Macon County.—The station is in the northeast section of the county fairgrounds, about one-fourth mile west of the center of town, on the main road. It is 75 feet from the high wood fence north of it, and 65 feet from the one east of it. A limestone post 10 by 10 by 30 inches, projecting one-half inch above ground and having a brass magnetic station marker in the top, marks the exact spot. The following true bearings were determined:

	° ′
Tower of public school (mark)	69 15.4 east of south
North gable of large barn, 300 yards east of fairgrounds on main road	53 10.4 east of south
North gable of residence on main road, 500 feet east of fairgrounds	33 09.0 east of south
Top of tower in center of fairgrounds	76 29.3 west of south
South gable of residence 400 feet distant	67 53.3 east of north

Lebanon, Wilson County.—The station is located on the grounds of the public school, west of the new brick building. It is 100 feet east of the west fence, 32 feet north of flower bed, 69 feet west of another flower bed, and 29.5 feet northwest of a small tree. The station is marked by a marble post 6 by 6 by 30 inches, with a brass plate in the top and projecting about 5 inches above the ground. The following true bearings were determined:

	° ′
Spire on Caruther's Hall (mark)	49 52.7 west of south
Methodist Church spire	6 41.2 east of south
Spire on Cumberland College	41 57.8 west of south
Northwest corner of schoolhouse	79 41.9 east of south

Lewisburg, Marshall County.—The station is on a baseball field belonging to Mr. Adams, about one-fourth mile east of the courthouse. It is in the northeast corner of the field at the base of a small ridge. It is 38 feet from the wire fence marking the north end of the field and about 700 feet north of the baseball diamond. It is marked by a limestone post 8 by 8 by 27 inches, projecting 3 inches above ground and having a brass plate in the top. The following true bearings were determined:

	° ′
East gable of residence 500 yards distant (mark)	11 42.9 east of south
Courthouse spire	41 39.7 west of south
Methodist Episcopal Church spire	52 14.9 west of south
Baptist Church spire	53 36.7 west of south
Schoolhouse cupola	65 31.6 west of south

The south end of a meridian line 765 feet long is marked by a limestone post 6 by 6 by 21 inches with a one-half inch hole in the top and set flush with the ground.

Livingston, Overton County.—The station is located on the schoolhouse grounds, about 236 feet due south of the nearer southeast corner of the school building, 65 feet from the wire fence on the east of the lot, 29 feet north of the sidewalk, and 43 feet east of the east edge of walk leading to the schoolhouse. The station is marked by a marble post 6 by 6 by 30 inches, projecting about 4 inches above the ground and having in its top a brass magnetic station marker. The following true bearings were determined:

	° ′
Spire on printing office (mark)	22 57.0 west of south
Baptist Church spire	5 06.3 east of south
Southeast corner of Methodist Church	50 43.2 west of south
Southeast corner of schoolhouse	4 06.8 west of north

Lynchburg, Moore County.—The station is at the summit of a high hill, about three-fourths mile west of the center of the town. It is about 40 feet from the sharp descent on the west and about 500 feet north of the south edge of the summit. It is marked by a limestone post 8 by 6 by 30 inches, projecting 4 inches above ground with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Courthouse spire (mark)	89 47.2 east of south
West gable of Holt's brick residence	78 52.2 east of north
North gable of residence	26 12.6 west of south
East gable of residence	69 37.0 west of south
South gable of barn	19 21.5 west of north

A stone 10 by 10 by 32 inches with a cross cut in the top and projecting 6 inches above the ground marks the south end of a meridian line 340 feet long.

Lynnville, Giles County.—The station is located in the baseball grounds owned by Mr. Wagstaff, about one-fourth mile southeast of the town's center. It is in the southwest section of the field, 138 feet from the wire fence to the west,

TENNESSEE—Continued.

and 121 feet from the fence to the south. It is marked by a limestone post 8 by 8 by 26 inches, set flush with the ground and having a brass plate in the top. The following true bearings were determined:

	° ′
Spire of Presbyterian Church (mark)	52 29.5 west of north
Spire of Methodist Episcopal Church	41 46.6 west of north
Southeast edge of high-school dormitory	28 15.6 east of north

Manchester, Coffee County.—The station is in the extreme south corner of the schoolhouse grounds, about one-half mile southeast of the center of town. It is 44 feet from the wire fence to the southeast and 82 feet from that to the southwest. It is marked by a limestone post 9 by 9 by 28 inches, projecting 2 inches above ground with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
East gable of residence 200 yards northwest of school (mark)	19 09.4 west of north
Extreme top of schoolhouse	1 01.9 east of north
Gable of barn, 200 feet across railroad	36 43.8 west of north

McMinnville, Warren County.—The station is in the south corner of the town cemetery, which is about three-fourths mile south of the center of town and directly across from the depot. It is 61 feet from the fence to the southwest and 76 feet from the wire fence to the southeast. It is marked by a limestone post 9 by 9 by 28 inches, projecting 4 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
South gable of residence on hill one-half mile away (mark)	61 03.2 east of north
North gable of mill	79 44.6 east of north
East gable of residence	65 35.8 west of south
Granite monument in cemetery marked "Francis Bell"	0 12.6 west of north

Memphis, Shelby County.—The station of 1908 was reoccupied. It is in the southwest corner of the United States Marine-Hospital grounds, 33 feet from the upper edge of the terrace which marks the southern boundary of the grounds, 52.3 feet from the west fence, 33.2 feet from the fence to the south, and 22.3 feet from a tree southeast. It is marked by a sandstone post 6 by 6 inches on top, sunk flush with the surface of the ground. The following true bearings were determined in 1908:

	° ′
Center of iron pipe (mark)	70 22.7 east of south
Southwest corner of asylum office building	84 45.7 east of south

Nashville, Davidson County.—The station of 1905 was reoccupied. It is in the Mount Olivet Cemetery, about 3 miles from the center of the city. It is 61 feet from the Wade monument, 89.7 feet from the Collins monument, and 96.8 feet from a large white-oak tree across the driveway. The station is marked by a Bedford limestone post 5 by 8 by 30 inches, projecting 1 inch above ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined:

	° ′
Gardiner monument (mark)	54 38.0 west of north
Hooper obelisk	73 36.7 east of south
Minor monument	87 08.4 west of south
Ensley monument	35 51.3 east of north

Shelbyville, Bedford County.—The station is inside the race track at the county fairgrounds, about seven-eighths of a mile east of the center of town. It is 23 feet north of the inside fence on the south track, and about midway between the ends of the track. It is marked by a limestone post 9 by 6 by 30 inches, projecting 4 inches above ground and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′
Gable of outhouse on grounds (mark)	75 02.6 east of north
North gable of residence	17 29.1 east of south
East gable of residence	65 19.6 west of north

Smithville, DeKalb County.—The station is on the grounds of the public high school, about one-half mile south of the town's center. It is in the northwest section, 140 feet from the fence to the north, 159 feet from the corner of the yard to the southwest, and 270 feet from the northwest corner of the schoolhouse. A limestone post 10 by 10 by 32 inches, projecting 3 inches above the ground and having a brass magnetic station marker in the top, marks the exact spot. The following true bearings were determined:

	° ′
Spire of Cumberland Church (mark)	23 41.8 east of north
West gable of Allen's barn	46 57.0 east of north
Southwest corner of school	25 31.0 east of south
Gable of kitchen on Bonham's residence	75 37.7 west of south
South gable of Lawson barn	22 29.6 west of north

TENNESSEE—Continued.

About 510 feet south a limestone post 4 by 13 by 30 inches, projecting 8 inches above the ground, with a hole in the top, marks the end of a meridian line.

Sneedville, Hancock County.—The station is located on the grounds of the county high school, 217 feet north by east of the northwest corner of the frame school building, 36 feet west of the east fence and 45 feet southwest of a large tree near the east fence. The station is marked by a granite post 6 by 6 by 30 inches, projecting 3 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Cupola of schoolhouse (mark)	16 05.8	west of south
Southwest corner of Sothern's house	53 54.9	west of north
Southwest corner of Forsythe's house	39 34.0	west of north
Southwest corner of Roberts' house	6 04.2	west of south

Spencer, Van Buren County.—The station is in the southwest part of the college grounds, 31 feet from the fence to the south, 150 feet from the fence to the west, and 140 feet from the southwest corner of the dormitory south of the main building. It is marked by a limestone post 9 by 9 by 28 inches, sunk level with the ground with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Southeast edge of roof of Galloway's residence (mark)	19 08.6	west of south
Southeast edge of church	82 04.8	west of south
East gable of Gelintine's residence	59 42.5	west of north
Southeast edge of main school building	79 25.2	east of north
Southwest edge of dormitory south of main building	76 43.4	east of south

To mark the true meridian a bar of iron 1½ inches square, projecting 4 inches above ground, was set 343 feet due north of the magnetic station.

Wartrace, Bedford County.—The station is in the northwest corner of the public school grounds, about one-fourth mile northwest of the center of town. It is 35 feet from the fence to the north, and 85 feet from that to the east. It is marked by a limestone post 9 by 6 by 30 inches, projecting 4 inches above ground and lettered U. S. C. & G. S., 1911. The following true bearings were determined:

	° ′	
Gable of residence east of church (mark)	72 59.3	east of south
Spire of church 100 yards southeast of school	65 26.0	east of south
Northeast edge of school	54 52.7	east of south
Southwest edge of school	41 16.8	east of south
East gable of barn 250 yards distant	71 58.3	west of south

Winchester, Franklin County.—The station is inside the race track at the county fair grounds, about three-fourths mile south of the center of town. It is 95 feet west of the signal tower facing the grand stand, and 23 feet north of the inside fence of the race track. It is marked by a limestone post 8 by 6 by 30 inches, projecting 2 inches above the ground and having a brass station marker in the top. The following true bearings were determined.

	° ′	
East gable of residence on fair grounds (mark)	68 39.0	west of south
South gable of barn 400 yards distant	43 02.3	west of north
Spire of east tower of stables	6 48.3	west of north
Center of watertank	50 30.3	east of north
West gable of superintendent's office on grounds	69 54.8	east of south

Woodbury, Cannon County.—The station is in the southeast corner of a pasture bounded on the north by the main road and on the west by a stream, and is about one-fourth mile west of the courthouse. It is 26 feet from the wooden fence to the southwest, and 96 feet from the fence to the southeast. It is marked by a limestone post 10 by 10 by 30 inches, projecting about 4 inches above ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
South gable of colored church (mark)	28 25.2	east of north
Baptist Church spire	54 20.8	east of north
West gable of residence 200 feet distant	85 57.6	east of north
Gable of barn 200 feet distant	64 51.8	east of south
East gable of Lehman's residence	42 44.6	east of south

The north end of the meridian line is marked by a stone post 6 by 7 by 25 inches, projecting 2 inches above ground and having a hole in the top to mark the exact spot. The stone is 675 feet distant.

TEXAS.

Angleton, Brazoria County.—The station is in the southwest section of the city park which is due south of the courthouse. It is 83.6 feet from the rail fence on the west and about 67 feet from that on the south. It is marked by a limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	° ′	
North gable of store south of station (mark)	8 41.5	west of south
North gable of residence 300 feet north of mark	11 50.6	west of south
East gable of residence 500 feet southwest of station	57 00.7	west of south
Southeast edge of jail	21 50.7	east of north
Upper southwest edge of school	41 33.9	west of south

The meridian line is temporarily marked by a stake set 550 feet north of the magnetic station. The stake is to be replaced by a stone.

Austin, Travis County.—The station of 1906 was reoccupied. It is in the northwest part of the grounds of the State Deaf and Dumb School, north of the tennis courts. It is marked by a stone post lettered U. S. C. & G. S., which projects 6 inches above the ground. The following true bearings were determined:

	° ′	
Spire on main building of University of Texas (mark)	17 49.4	east of north
Congregational Church spire	19 49.5	east of north
East spire, main building, Deaf and Dumb School	17 05.7	east of south
South meridian stone	0 01.4	east of south

The south stone of the meridian line is 570 feet from the magnetic station and 6 feet from the northwest corner of the laundry building.

Bastrop, Bastrop County.—The station is located on the courthouse grounds and is marked by the south stone of a meridian line established by the United States Geological Survey. The stones 6 by 8 inches, projecting about 10 inches above ground and having brass caps in the tops, are set about 375 feet apart. The south stone sets about 75 feet from south fence about the courthouse, and the north stone sets a few inches inside the north fence. The following true bearings were determined:

	° ′	
North gable of Prokop's residence (mark)	6 48.6	east of south
East gable of Dietz's residence	39 00.0	west of south
Extreme outer southwest edge of jail	48 01.8	west of north
Spire on Baptist Church	6 19.1	east of north
North meridian stone	0 01.8	east of north

Bay City, Matagorda County.—The station is located about three-fourths mile northeast of the courthouse and due east of the ice and power plant, in the north edge of a large field which is bordered on the south by the railroad. The baseball park is at the southwest corner of it. It is 18.2 feet east of the rail fence bordering Mr. McLeigh's residence on the east, 12.4 feet north of the line of the south fence, and about 52 feet from the center of the road on the south. It is marked by a limestone post 6 by 8 by 30 inches, projecting 3 inches above the ground and having a brass station mark in the top. The following true bearings were determined:

	° ′	
Spire of Methodist Church (mark)	0 04.7	east of south
Water tank of mill one-fourth mile southwest of station	26 30.2	west of south
Courthouse tower	42 19.3	west of south
East gable of ice plant	50 10.3	west of south
South gable of residence northwest of station	19 12.3	west of north

Beeville, Beeville County.—The station of 1906 was reoccupied. It was found to be no longer suitable for magnetic observations on account of the erection of a new brick courthouse, and a new station was therefore established in the northwest central part of the county high school grounds, about 1¼ miles north of the center of the town. It is 228 feet from the north corner of the school building, 40 feet from the fence northwest of it, and 295 feet from the fence to the southeast. The station is marked by a limestone post 8 by 8 by 30 inches lettered U. S. C. & G. S. N. M. It projects 2 inches above the ground and has a small hole in the center to mark the exact spot. The following true bearings were determined:

	° ′	
North gable of residence 500 feet away (mark)	16 09.8	east of south
Center of cross on spire of Catholic Church	14 33.9	east of south
Northwest edge of courthouse (below cornice)	12 47.4	west of south
Cupola on barn 500 feet away	37 30.1	west of north
South gable of residence 500 feet away	3 51.9	west of north

A wooden stake was set 280 feet due south of the magnetic station to mark the meridian line. The stake is to be replaced by a stone post.

TEXAS—Continued.

Bonham, Fannin County.—The station is in the southeast part of the grounds of the county high school, about one-half mile west of the courthouse. It is 44.5 feet from the row of telephone poles on the side of the street to the south, about 50 feet from the nearest tree to the southeast, 23 feet from the elm to the southwest, about 250 feet from the southeast corner of the schoolhouse, and 160 feet from the ditch on the west side of the road on the east. The station is marked by a limestone post 6 by 8 by 27 inches, set flush with the ground, with a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Spire of cupola on residence one-half mile away (mark)	28 04.4	east of north
West gable of residence 400 feet away	82 42.7	east of north
Upper north gable of residence	7 22.9	east of south
East gable of small two-story residence, 300 feet away	54 21.5	west of south
Southwest edge of school building	25 41.3	west of north

A limestone post 8 by 8 by 24 inches, set flush with the ground and having a brass plate in the top, marks the north end of a meridian line. This stone is on the north boundary of the grounds, 425 feet from the magnetic station.

Boston, Bowie County.—The station is on the grounds of the public school which lies about 1 mile due north of the courthouse. It is in the southwest corner, 81.2 feet from the fence to the west, 74.2 feet from the fence to the south, about 292 feet from the north fence and about 214 feet from the southwest corner of school building. The station is marked by a limestone post 6 by 8 by 26 inches, set flush with the surface of the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Courthouse tower (mark)	5 21.8	west of south
East gable of Mr. Ketchum's residence	37 34.2	west of south
Gable of residence	82 04.2	west of north
South gable of Willis residence	47 01.5	west of north

Brenham, Washington County.—The station is located in the northwest section of the city or fireman's park, about one-half mile north of the center of the town. It is northeast of the baseball grounds about 90 feet from the nearest corner of the grand stand, 70 feet from the wire fence to the north of it, and about 58 feet from the fence northeast of it. It is marked by a limestone post 7 by 7 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Spire of Presbyterian Church (mark)	3 27.7	east of south
Upper northwest edge of grand stand	86 40.3	west of south
South gable of residence north of station	16 39.8	west of north
West gable of barn northeast of station	34 33.1	east of north
West edge of flagpole on dance hall	24 48.2	east of south

Brownwood, Brown County.—The station is located in a clearing in the city park, about 1 mile north of town. It is about 185 feet from the fence on the east side of the park (near the stream) and 15 feet southwest of the center of the first wagon road which branches off to the west after entering the park from the south or main entrance. It is about 450 feet north of the railroad track which passes the main entrance. The station is marked by a stone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearing was determined:

	° ′	
West edge of base of telegraph pole near railroad track	10 44.4	east of south

Bryan, Brazos County.—The station is in the northern section of the public-school grounds, about one-half mile south of the center of the town. It is 39 feet from the fence bounding the northeast edge of the grounds and 55 feet from the cement walk on the northwest. The station is marked by a limestone post 7 by 7 by 30 inches, projecting 1 inch above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Gable of residence, 300 yards southwest of station (mark)	57 46.0	west of south
Spire on residence, 500 feet southwest of station	69 43.6	west of south
Spire on residence, 200 feet west of station	58 05.8	west of north
Spire on residence, 300 yards south of station	23 43.8	east of south
Outer east edge of school	2 51.0	west of south

Burnet, Burnet County.—The station is in the southwest corner of the city park, about one-half mile east of the center of the town. It is 58 feet from the fence on the south and 41 feet from that on the west. The station is marked by a stone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Spire on Presbyterian Church (mark)	82 06.4	west of south
South gable of barn, 400 feet away	68 32.3	west of north
East gable of residence, 500 feet away	27 16.0	west of north
East gable of residence, 300 feet away	23 46.2	west of south

TEXAS—Continued.

A granite post 8 by 8 by 24 inches, projecting 4 inches above the ground, was set 425 feet due north of the magnetic station to mark the north end of the meridian line.

Canton, Van Zandt County.—The station is in the north-central section of the grounds of the public school, about three-fourths mile south of the center of the town. It is at the edge of the timbered section of the grounds, about 10 feet southeast from a footpath leading into the grounds from the north and about 40 feet from a tree to the west. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 1 inch above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
West gable of small frame building east of schoolhouse (mark)	1	39.9	east of south
Southeast edge of schoolhouse	23	41.2	west of south
Northwest edge of schoolhouse	36	22.5	west of south

Carthage, Panola County.—The station is near the northwest corner of the high-school grounds, about one-half mile northwest of the town's center. It is 94 feet south of the board fence on the north side of the grounds, 74 feet east of the board fence on the west side of the grounds, and 118 feet northwest of the northwest corner of the high-school building. The station is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
East edge of east chimney on J. R. Jones's house (mark)	6	08.1	east of south
East edge of east chimney on G. G. Haviston's house, on line with top of house	0	22.6	east of south
Southwest corner of south chimney on L. J. Parker's house, 6 feet above ground	44	09.3	west of north
Northeast corner of high-school building, at bottom of second-story windows	69	50.3	east of south
Southwest corner of high-school building, at bottom of second-story windows	28	30.7	east of south

Centerville, Leon County.—The station is near the southeast corner of the courthouse yard, near the town's center. It is 20.8 feet east and a little south of the southeast corner of the courthouse, 85 feet northwest of a large tree and about in line with this tree and the southeast corner of the courthouse. The station is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
East edge of north chimney on L. A. Coley's house (mark)	5	02.2	east of south
Northwest corner of Coley Bros.' brick store, 2 feet above cement walk	44	57.4	west of south
Southeast corner of Gresham & Halleman's brick store	67	07.5	west of south
Southeast corner of jail, on line with bottom second-story windows	38	47.4	east of north
Magnetic station "B"	58	43.3	east of south

Declination observations were also made at a point 100 feet southeast of the marked station.

Clarksville, Red River County.—The station is on the grounds of the public school, about one-half mile south of the town's center. It is about 163 feet from the fence to the west and about 76 feet from the fence to the north. The station is marked by a Bedford limestone post 6 by 8 by 27 inches, projecting about 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
East gable of barn, 300 yards away (mark)	0	34.8	west of south
North gable of store, 200 feet west of school	19	24.1	west of south
South gable of barn, 300 feet away	53	16.4	west of north
Gable of negro hut, 300 feet away	48	11.6	east of north
Gable of residence	86	09.9	east of north

A similar stone with brass cap marks the south end of a meridian line about 410 feet long.

Coldspring, San Jacinto County.—The station is on the grounds of the old schoolhouse, about 400 yards southeast of the courthouse. It is about 350 feet south of the old building at the edge of a grove of large trees, 52 feet from the first large tree to the west, 95 feet from that to the southwest, and 72 feet from that on the south. The station is marked by a limestone post 7 by 7 by 30 inches, projecting 1 inch above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of barn south of station (mark)	4	51.2	east of south
Southeast edge of brick schoolhouse	66	40.6	west of south
North gable of residence 200 yards northwest of station	68	26.4	west of north
Northeast edge of residence 500 feet northwest of station	49	46.5	west of north
Lower northwest edge of old schoolhouse	5	02.2	east of north

The north end of the meridian line is marked by a 1-inch pipe set 410 feet north of the magnetic station and projecting 1 inch above the ground.

Columbus, Colorado County.—The station is located in the southwest section of the public-school grounds, about one-half mile southwest of the courthouse. It is about 41 feet from the south fence and 91 feet from that on the west.

TEXAS—Continued.

The station is marked by a limestone post 8 by 8 by 32 inches, projecting 6 inches above the ground and having a brass station mark in the top. The following true bearings were determined:

	° ′	
North gable of church southeast of station (mark)	10 59.0	east of south
East gable of residence west of station	87 21.8	west of south
South gable of residence 200 yards northwest of station	24 34.0	west of north
Northwest edge of school	4 12.2	east of north

A stake is set 325 feet north of the magnetic station to mark the north end of the meridian line. The stake is to be replaced by a stone.

Comanche, Comanche County.—The station is on the grounds of the public school, about one-fourth mile northwest of the courthouse. It is in the southwest section, 72 feet from the middle of the road on the south and 58 feet from the middle of the road on the west. It is about 300 feet from the school building. The station is marked by a limestone post 8 by 8 by 29 inches, projecting 1 inch above the ground and having a brass plate in the top. The following true bearings were determined:

	° ′	
West side of flagpole on jail (bottom)	10 52.0	east of south
East gable of Gilly's residence	60 21.4	west of south
South gable of Lloyd's residence	1 39.4	west of north
Southeast corner of school	39 09.5	east of north
Tower on First National Bank	52 38.6	east of south

The north end of a meridian line 425 feet long is marked by a hardwood post 8 inches in diameter and 25 inches long. It projects 3 inches above the ground and has a copper tack driven in the top to mark the exact line.

Cooper, Delta County.—The station is in the clearing in the center of the city park, about 1 mile east of the center of the town and one-fourth mile south of it. It is 205 feet east of the corner of the cemetery, 52 feet southeast of a large tree, 102 feet northwest of a prominent tree, and 175 feet from the fence marking the south boundary of the park. The station is marked by a limestone post 6 by 8 by 27 inches, having a brass plate in the top and projecting 3 inches above the ground. The following true bearing was determined:

	° ′	
Gable of barn (mark)	45 15.3	west of south

The north end of a meridian line 475 feet long is marked by a hardwood post 30 inches long and 4 inches in diameter, projecting 3 inches above the ground. The exact line is indicated by a nail driven in the top.

Crockett, Houston County.—The station is on the grounds of the Mary Allen Seminary, about 1 mile north of town. It is 91 feet from the southeast corner of the seminary, 20 feet east of the line of the east side of the seminary, 67 feet north of a fence on the south edge of the grounds, and 47 feet southwest of a road leading to the seminary. The station is marked by a limestone post 6 by 6 by 24 inches with a brass plate in the top. The stone sets flush with the ground. The following true bearings were determined:

	° ′	
Southwest corner of chimney on Thompson & Lundy's house (mark)	63 12.8	east of south
East gable on house across valley	36 45.3	west of south
Southwest corner of the seminary, 4 feet above ground	73 19.2	west of north

Dallas, Dallas County.—The station is near the center of the Oakland Cemetery, about 2½ miles southeast of the town's center. It is near the south edge of the circle upon which the pavilion stands, 12 feet from the edge of the drive to the north, and 45 and 51 feet, respectively, from the northeast and northwest corners of the pavilion. The station is marked by a limestone post 6 by 6 by 24 inches with a brass plate in the top. The stone is set in concrete with top flush with the surface of the ground. The following true bearings were determined:

	° ′	
Letter "t" in word Armstrong on Armstrong monument (mark)	7 13.0	east of south
North corner of lowest base stone of the Gano monument	82 21.0	west of north
Southeast corner of middle stone on the Merrick monument	43 49.8	east of north

Denton, Denton County.—The station is near the southeast corner of the North Texas State Normal School campus, about three-fourths mile west of the town's center. It is 125 feet west of the fence on the east side of the campus, 130 feet north of the fence on the south side of the campus, 112 feet northeast of a large tree, and 112 feet east of a brick walk. The station is marked by a limestone post 6 by 6 by 24 inches, brass plate in the top, and set flush with the ground. The following true bearings were determined:

	° ′	
Southwest corner of Science Hall at ground (mark)	3 01.0	west of north
Southeast corner of Science Hall at ground	19 58.9	east of north
Spire on courthouse dome	80 28.2	east of north
Spire on cupola of the Sam Houston School building	39 23.4	east of south
South edge of a chimney on frame house	56 02.8	west of south

TEXAS—Continued.

Emory, Rains County.—The station is in a pasture owned by Sheriff Morgan, about three-fourths mile southwest of the town's center. It is 46.3 feet from the fence on the north, 285 feet from that on the west, and 166 feet from the east fence. The station is marked by a limestone post 8 by 8 by 27 inches, set flush with the ground, and having in its top a brass magnetic station marker. The following true bearings were determined:

	°	′	
East gable of small barn (mark)	57	14.4	west of south
South gable of residence one-fourth mile away	3	09.0	east of north
Courthouse spire	27	28.9	east of north
North gable of barn 300 yards away	7	44.8	east of south

The south end of a meridian line, distant 455 feet long, is marked by a hardwood post 4 by 4 by 24 inches, projecting 2 inches above the ground, and having a nail driven in the top to mark the exact line.

Fairfield, Freestone County.—The station is near the southeast corner of the courthouse square, near the town's center. It is 40 feet west of the east fence, 65 feet north of the south fence, and 58 feet from the southeast corner of the courthouse. Station is marked by a limestone post 6 by 6 by 24 inches with a brass plate in top. The stone sets flush with the ground. The following true bearings were determined:

	°	′	
Spire on cupola of high school (mark)	19	58.8	west of north
Northwest corner of the Hall Building just above awning	16	22.5	west of south
Southeast corner of east chimney on hotel at top	62	52.7	west of south
Southwest corner of courthouse at bottom of bricks	79	53.6	west of north
Northeast corner of cornerstone on courthouse	35	33.3	west of north

Floresville, Wilson County.—The station is in the southwest central portion of the public-school grounds, about one-fourth mile northwest of the courthouse. It is 22 feet from a prominent tree to the south, and 52 feet from the center of the road on the southwest. The station is marked by a limestone post 8 by 7 by 30 inches, projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
South gable of residence 500 feet away (mark)	87	46.1	east of north
East gable of restaurant 200 yards away	76	47.6	west of south
East gable of residence 300 feet away	82	10.4	west of north
North gable of Methodist Church	50	08.7	west of north

A piece of gas pipe 18 inches long was set 335 feet due north of the magnetic station to mark the north end of the meridian line. The pipe is to be replaced by a stone post.

Giddings, Lee County.—The station is located in the southern part of the school grounds, about one-fourth mile southeast of the courthouse. It is 47 feet from the south fence and 140.8 feet from the west fence. The station is marked by a rough stone about 6 by 8 by 27 inches, set flush with the surface of the ground and lettered U. S. in the top. The following true bearings were determined:

	°	′	
North gable of negro cabin 300 yards south of station (mark)	18	53.9	west of south
East gable of Wheatley's residence	77	52.4	west of north
East side of flagpole on courthouse	20	29.4	west of north
Methodist Church spire	7	32.9	west of north
West gable of Hillsman's residence	71	15.2	east of north

The north end of the meridian line is marked by a stone, set 460 feet north of the magnetic station. The stone is 32 inches long and projects 7 inches above the ground.

Gilmer, Upshur County.—The station is on a hill about one-half mile southwest of the town's center. It is in a small pasture belonging to Mr. W. H. McClelland, 114.5 feet southwest of the pipe leading up the center of the elevated tank, 29.4 feet south of a fence, 100 feet north of a fence, and 147.5 feet west of a fence. These three fences bound the north, south, and east sides of the pasture, respectively. The station is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Spire on cupola of high school (mark)	10	04.0	west of north
Ball on apex of Baptist Church cupola	27	53.5	east of north
Old Baptist Church spire	32	18.6	east of north
Southeast corner of the main part of the courthouse tower	43	46.0	east of north
Spire on cupola of the Dickson Orphanage	20	53.4	east of south

Glen Rose, Somervell County.—The station is in the northeast section of the public-school grounds, about one-half mile east of the town's center. It is about 220 feet from the northeast corner of the schoolhouse and 50 feet

TEXAS—Continued.

from the center of the road north of the station. The station is marked by a stone post 7 by 7 by 30 inches, projecting 3 inches above the ground and lettered U. S. C. & G. S., 1912. The following true bearings were determined:

	°	′	
West gable of Lilly Home (mark)	46	28.8	west of south
South gable of residence 400 feet away	72	59.0	west of south
South gable of residence 300 feet away	83	09.9	west of north
West gable of barn 300 feet away	77	05.6	east of south
Northwest edge of schoolhouse	41	48.6	west of south

The south end of a meridian line 310 feet long is marked by a stone 6 by 6 by 32 inches, with a one-fourth-inch hole in the top.

Goldthwaite, Mills County.—The station is near the center of the southern half of the public-school grounds, about one-half mile northwest of the town's center. It is 66 feet from the center of a wagon road to the northeast, 206 feet from the southeast corner of the school building, and 270 feet from the center of the road on the south of the school grounds. The station is marked by a limestone post 8 by 8 by 20 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of residence one-fourth mile away (mark)	11	12.6	east of south
Southwest edge of schoolhouse	56	35.4	west of north
Northeast edge of schoolhouse	33	36.3	west of north
South gable of residence 500 feet away	17	56.4	east of north
Spire of Methodist Episcopal Church	60	11.8	east of south

Greenville, Hunt County.—The station is on the county fairgrounds, about 1¼ miles southeast of the center of the town. It is about midway between the extremities of the race track and is 43 feet south of the outside fence on the south side of the race track. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 4 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Tower of exhibition hall (mark)	31	15.6	west of north
Lower east side of flagpole on grand stand	23	41.4	west of north
Gable of residence ¼ mile away	21	19.4	east of north
Gable of two-story residence ¼ mile away	48	14.2	east of north
East gable of residence, about 500 feet northwest of northwest corner of grounds	51	12.3	west of north

Groveton, Trinity County.—The station is near the southwest corner of the courthouse grounds, near the town's center. It is 121 feet southwest of the southwest corner of the courthouse, 78 feet southeast of the southeast corner of the jail, 43 feet north of the fence on the south, 24 feet southwest of the path leading from the front gate to the jail. It is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top, and set flush with the ground. The following true bearings were determined:

	°	′	
Flagstaff on cupola of high school (mark)	25	27.9	east of north
Southwest corner near ground of county clerk's office	80	45.4	east of south
Apex of capstone at top of southwest corner of Collins's store	8	28.7	east of south
Northeast corner of jail, 3 feet above ground	2	41.4	east of north

Hamilton, Hamilton County.—The station is in the southwest section of the public school grounds, a few blocks southwest of the town's center. It is about 350 feet southwest of the school, about 28 feet from the center of the road west of the school, about 20 feet from a rough wagon road running diagonally across the grounds and southeast of the station, and 81 feet from a wire fence on the south side of the road south of the station. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
North gable of small outhouse on farm, 600 feet away (mark)	2	33.0	west of south
North gable of residence 500 feet away	28	33.0	west of south
Southwest edge of residence	54	05.9	west of north
Southeast corner of schoolhouse	47	10.1	east of north
West gable of residence 300 feet away	31	16.0	east of south

The south end of a meridian line 625 feet long is marked by a limestone post 7 by 7 by 18 inches, sunk flush with the ground and having a small hole in the center to mark the exact line.

Hemphill, Sabine County.—The station is on the grounds of the public school, about one-half mile northeast of the center of the town. It is in the southeast section of the grounds, 98 feet from the fence on the east, 74 feet from the fence across the road on the south, and about 200 feet southeast of the brick schoolhouse. The station is marked by a

TEXAS—Continued.

limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
South gable of storeroom north of station (mark)	2	03.8	west of north
Southwest edge of school building	63	37.7	west of north
Southwest edge of residence east of station	39	09.7	east of south

A piece of 1¼-inch pipe, 2 feet long and projecting 1 inch above the ground, sets 310 feet due north of the magnetic station to mark the north end of the meridian line.

Huntsville, Walker County.—The station is located in the northeast section of the athletic grounds of the normal school and is about three-fourths mile southwest of the center of the town. It is 72.7 feet from the tree to the east and 33.9 feet from the fence on the north. The west fence is about 180 feet west of the station. The station is marked by a limestone post 7 by 7 by 30 inches, sunk level with the surface of the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
East cupola of agricultural hall (mark)	84	26.2	east of south
South cupola of hall	81	04.1	east of south
West side of penitentiary standpipe	52	08.6	east of north
Chimney (lower southwest edge) on residence 300 yards northwest of station	15	49.3	west of north
Extreme upper southwest corner of courthouse	27	36.7	east of north

The south end of a meridian line is marked by a piece of pipe set 330 feet south of the magnetic station. The pipe is 1 inch in diameter and driven 2 feet into the ground, leaving about 1 inch above the ground.

Kountze, Hardin County.—The station is on the grounds of the public school, about one-fourth mile southeast of the center of the town. It is about 108 feet east of the southeast corner of the frame schoolhouse, 41 feet from a large pine tree northwest of the station, and 35 feet from a similar pine about 10 paces west of the former. The pines border on a small footpath running northeast from the school. The station is marked by a stone post 8 by 8 by 30 inches projecting 3 inches above ground and having in its top a brass magnetic station marker. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	82	26.4	west of north
Southeast edge of outhouse due south of station	4	59.3	east of south
Center of water tank on jail	85	58.8	west of north
East gable on Sims Hotel	49	15.3	west of north
Spire of Methodist Church	39	40.6	west of north

Linden, Cass County.—The station is on the grounds of the public school, about one-fourth mile east of the center of the town. It is 154.7 feet southeast of the southeast corner of the school building, 62.3 feet due east of a large tree, and about 12 feet from a footpath cutting across the grounds diagonally. The station is marked by a stone post 8 by 8 by 26 inches, set so as to project 1 inch above the ground and having in its top a brass magnetic station marker. The following true bearings were determined:

	°	′	
East gable of barn west of Beasely's residence (mark)	9	11.6	east of south
North gable of residence southwest of station	38	19.6	west of south
South gable of residence 300 feet west of school	73	22.2	west of north
Southwest edge of school	46	48.1	west of north
Northeast edge of school	25	10.2	west of north

The south end of a meridian line is marked by a hardwood post 21 inches long and set 525 feet due south of the magnetic station.

Lockhart, Caldwell County.—The station is in the city park, about three-fourths mile northwest of the courthouse and near the public-school grounds. It is 30 feet from the fence on the west, 202 feet from the center of the road on the north, and 99 feet from the nearest corner of the pavilion southeast of the station. The station is marked by a limestone post 5 inches square at the top and 31 inches long, set flush with the surface of the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
South gable of residence 250 yards away on main road (mark)	17	32.7	west of north
Northwest edge of red brick schoolhouse	2	35.7	west of north
Southeast edge of white brick schoolhouse	13	50.4	east of north
Northwest edge of residence 250 feet away	50	00.0	east of north
Lightning rod on residence 400 feet away	63	05.6	west of south

McKinney, Collin County.—The station of 1902 was reoccupied. It is near the southeast corner of the public-school grounds, which comprise a lot of some 6 to 7 acres in the western part of town. Distance of the station from the south fence is 86.7 feet; from east fence is 96.3 feet. The schoolhouse is over 300 feet from the station. The station is marked

by a marble monument 33 inches long, 6 by 6 inches on top, sunk into the ground so as to project about 3 inches, and lettered on top as follows: U. S. C. & G. S., 1902. The following true bearings were determined:

	°	′	
Spire of South Presbyterian Church (mark)	50	25.1	east of north
Rod on cupola of Mr. Jesse Shain's house	60	10.6	east of north
Apex of cupola on northeast corner of Mr. Largent's house	61	13.2	west of north
South gable of house on southeast corner of block north of high school	8	41.4	east of north

Mount Vernon, Franklin County.—The station is near the north edge of the high-school grounds, about one-fourth mile south of the town's center. It is 104.3 feet northeast of the northeast corner of the high-school building, 38 feet north of the north line of the high-school building produced eastward, and about 30 feet from the north side of the grounds. It is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
Spire on courthouse tower (mark)	2	01.7	west of north
Southwest corner at top of J. L. Rutherford's brick store	4	38.8	east of north
Methodist Episcopal Church spire	31	04.7	west of south
Southeast corner high school, near ground	39	25.0	west of south
Northwest corner high school, near ground	79	03.5	west of south

A second stone, with cross and drill hole in the top, was set 281 feet to the south of the magnetic stations to mark the true meridian.

Nacogdoches, Nacogdoches County.—The station is on the high-school campus, about one-fourth mile northeast of the town's center. It is 259 feet south of the southeast corner of the high-school building, 167 feet west of the edge of the street on the east side of the campus, 40 feet southeast of a sycamore tree. It is directly in line with two sycamore trees to the north, and a line through the station and these two trees would pass about 6 feet southwest of the southwest corner of the high school. The station is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
West edge of corner stone on southeast corner of high-school building (mark)	12	25.2	east of north
Spire on cupola of J. B. Stripling's house	76	39.7	east of south
Ball on apex of Methodist Episcopal Church cupola	62	26.6	west of south
Cross on Episcopal Church spire	83	32.2	west of south
Southwest corner of high-school building on line with top of first-story windows	18	02.1	west of north

Newton, Newton County.—The station is on the grounds of the public school, about half a mile east of the center of the town. It is about in the center of the north half of the grounds, about 300 feet from the brick school building, and northwest of the tennis courts. It is 25.3 feet from a prominent tree northwest of the station, 35.8 feet from one on the northeast, about 140 feet from the fence on the east, and about 130 feet from the middle of the road north of the school. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 1 inch above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
West edge of schoolhouse (mark)	1	38.8	east of south
North gable of storeroom west of school	15	14.6	west of south
North gable of residence 250 feet west of station	89	23.8	west of north
South gable of residence north of station	20	54.2	west of north
West gable of residence east of station	65	49.2	east of north

The south end of a meridian line is marked by a 1-inch pipe set about 330 feet south of the magnetic station. The pipe is 3 feet long and projects 2 inches above ground.

Pittsburg, Camp County.—The station is near the south edge of Forest Park, about one-third of a mile north of the town's center. It is 29.5 feet north of the fence along the south side of the park, 220 feet east of the fence on the west side, 30 feet east of an oak tree, and 106 feet northwest of the west gatepost. It is marked by a limestone post 6 by 6 by 24 inches, with a brass plate in the top and set flush with the ground. The following true bearings were determined:

	°	′	
East edge of elevated steel tank (mark)	8	52.8	east of south
Northwest corner of Hiller Hess's house	86	32.7	west of south
Spire on cupola of Methodist Episcopal Church	30	51.8	east of south

Quitman, Wood County.—The station is in the north end of the baseball park, about one-fourth mile south of the center of the town. It is 76 feet from the fence to the northeast, 100 feet from the fence to the east, 184 feet from that to the west, and 94 feet from the footpath on the west. The station is marked by a stone 8 by 8 by 28 inches,

TEXAS—Continued.

projecting 3 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Northest corner of roof on residence on grounds (mark)	12	56.5	west of south
Northwest edge of residence 500 feet away	63	57.1	west of south
Northwest edge of residence 300 feet away	86	20.2	west of north
East edge of pole on cupola of barn	3	34.7	west of north
West gable of cotton-gin factory	49	27.2	east of north

The south end of a meridian line, 620 feet long, is marked by an iron angle bar 2 inches on each side and 31 inches long, projecting 4 inches above ground.

Refugio, Refugio County.—The station is in the southwest section of the public school grounds, about one-half mile north of the town's center. It is 190 feet from the fence across the road on the south, 105 feet from that on the west, and 31 feet from a large tree on the east. The station is marked by a limestone post 6 by 8 by 31 inches, projecting 1 inch above the ground and having a brass station mark in the top. The following true bearings were determined:

	°	′	
Tower on residence, one-fourth mile south of station (mark)	17	36.4	west of south
Church spire southwest of station	37	01.1	west of south
Tower, one-fourth mile southwest of station	52	47.5	west of south
South gable of barn, 500 feet west of station	78	24.0	west of north
South gable of residence, 400 feet northwest of station	15	36.8	west of north

Richmond, Fort Bend County.—The station is located in a large pecan grove, about three-fourths mile east of town across the Brazos River. It is about 120 feet from the fence marking the south edge of the Southern Pacific Railroad property, and due south of the second telegraph pole west of the railroad signal which stands several hundred yards east of the railroad bridge. The station is marked by a limestone post 8 by 8 by 33 inches, projecting 6 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
East edge of large sign on fence 500 yards south of station (mark)	14	24.9	east of south
Large east gatepost of fence 200 yards south of station	15	01.8	east of south

Rockwall, Rockwall County.—The station is in the extreme southern central part of the public school grounds, about one-fourth mile south of the courthouse. It is 37 feet from a tree due west, 29 feet from the fence on the south, and about 210 feet from the southwest corner of the school building. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 3 inches above the ground and having a brass plate in the top. The following true bearings were determined:

	°	′	
Courthouse spire (mark)	10	17.8	west of north
Southeast edge of schoolhouse	36	26.8	east of north
West gable of Presbyterian Church	72	01.6	east of north
North gable of residence, 200 yards away	33	54.7	east of south
East gable of residence, 500 feet away	3	43.4	west of south

San Augustine, San Augustine County.—The station is in the southeast section of the public school grounds, about three-fourths mile east of the center of the town. It is 19.4 feet from the fence on the south and 46.3 feet from the fence on the east. The brick school is about 200 feet distant. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Northeast edge of music studio (mark)	8	18.6	west of north
North edge of school	39	04.0	west of north
South edge of school	57	39.8	west of north
Gable of residence, 200 yards northeast of station	29	40.4	east of north
Water tank northwest of station	26	48.8	west of north

Seguin, Guadaloupe County.—The station is in the northwest section of the public school grounds, about one-half mile northeast of the courthouse. It is 35 feet from the footpath on the west, 76 feet from the center of the road on the north, and 288 feet from the northwest corner of the schoolhouse. The station is marked by a limestone post 8 by 8 by 30 inches, projecting 2 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
West gable of residence, 400 feet away (mark)	1	40.5	east of south
East gable of residence	88	10.5	west of south
Spire on cupola of residence	51	03.4	west of north
West gable of barn one-fourth mile away	81	17.2	east of south
Lower west edge of flagpole on school	32	08.4	east of south

TEXAS—Continued.

Sinton, San Patricio County.—The station is in the northeast section of Taft Park, about one-half mile due west of the courthouse. It is 80.9 feet from a prominent tree southeast of it, 56.4 feet from one to the southwest, 45 feet from one on the northwest, and 109.9 feet from the nearest telegraph pole to the southeast. The station is marked by a limestone post 6 by 8 by 21 inches, sunk level with the surface of the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
North gable of residence, one-half mile south of station (mark)	4	49.4	west of south
East gable of residence, one-half mile southwest of station	50	18.8	west of south
South gable of cotton-gin factory north of station	3	05.4	east of north
Center of cross on Catholic Church	53	40.9	east of south
West gable of Methodist Church	20	00.1	east of south

Texarkana, Bowie County.—The station of 1901 could not be reoccupied. A new station was established in the eastern central part of the new baseball field, which is about 1 mile north of town and one-fourth mile northeast of the old station. It is 36.8 feet from the high board fence on the east, about 265 feet from the north fence, and about 135 feet from the south fence. It is marked by a limestone post 6 by 8 by 24 inches, surmounted by a brass magnetic station marker, and setting flush with the surface of the ground. The following true bearings were determined:

	°	′	
Gable of residence (mark)	3	51.4	west of south
Gable of residence, 300 feet west of mark	15	41.8	west of south
North gable of residence, 800 feet southwest of station (on Hazel Avenue)	43	45.2	west of south
East gable of residence, 200 feet west of the northwest corner of grounds	70	57.4	west of north
Upper southwest edge of residence, 200 feet north of north fence of field	0	57.4	west of north

Woodville, Tyler County.—The station is on the grounds of the public school, about one-fourth mile west of the center of the town. It is in the southwest section of the lot about 35 feet from a large prominent tree northwest of it, about 8 feet from a footpath southeast and about 185 feet from the southwest corner of the frame schoolhouse. The station is marked by a limestone post 10 by 10 by 30 inches, projecting 3 inches above the ground and having in its top a brass magnetic station marker. The following true bearings were determined:

	°	′	
Northwest edge of schoolhouse (mark)	27	15.4	east of north
East gable of Griffin's residence	69	54.4	west of north
South gable of Griffin's residence	74	08.0	west of north
Southeast edge of schoolhouse	55	28.8	east of north
Northwest edge of belfry on Methodist Church	34	47.9	west of south

The north end of a meridian line, 415 feet long, is marked by an iron bar of 1 inch diameter.

VIRGINIA.

Charlotte Court House, Charlotte County.—The station is in the northwest section of the public-school grounds, about one-eighth mile west of the courthouse. It is 45 feet from the fence west of it and 281 feet from the northwest corner of the schoolhouse. It is marked by a granite post 8 by 10 by 32 inches, projecting about 10 inches above ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Gable of barn 300 yards distant (mark)	88	00.2	west of north
Southwest edge of school	24	08.0	east of south
North gable of courthouse	62	52.1	east of south
West gable of residence, 200 yards distant	84	45.9	east of south
Northwest edge of residence, 150 yards distant	14	10.0	west of south

The north end of a meridian line 650 feet long is marked by a similar stone projecting 8 inches above ground.

Charlottesville, Albemarle County.—As the station of 1910 was likely soon to become unsuitable for magnetic observations, a new station was established near the northwestern corner of a field belonging to the University of Virginia and about 1,500 feet west of the rotunda of the university. It is 145 feet east-northeast of an oak tree 3 feet in diameter which stands just outside the field and to which the fence wires are attached, 72 feet south of a tree 6 inches in diameter, and 146 feet south-southeast of the south corner of the stone wall around a small cemetery. The station is marked by a marble post 6 by 6 by 24 inches, projecting 6 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Tower on hill	47	36.6	east of south
Center of stone post on west side of gate to cemetery, about 400 feet away	75	17.8	west of north
West gable of red barn, about 800 feet away	24	51.9	east of north
Center of dome of rotunda of university	86	56.8	east of north

VIRGINIA—Continued.

Chesterfield, Chesterfield County.—The station is located on the public road running north and south, 500 feet west of the courthouse. It is on the outer bend of the 30-feet road, about 400 feet north of the hotel and about 1 foot within the limit of the road. It is marked by a stone post 6 by 8 by 27 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
North gable of hotel (mark)	8	53.8	east of south
Southwest corner of jail	46	45.9	east of south
East gable of barn, 500 feet distant	19	51.2	west of south
North corner of residence	73	56.0	west of north

The south end of the meridian line, 386 feet long, is marked by a granite post 15 inches square at the base, setting 27 inches in the ground and tapering to 8 inches square at the top leaving 27 inches above ground. The intersection of two lines marks the exact spot.

Denbigh, Warwick County.—The station is in the west corner of the school grounds. It is 108 feet west of the west corner of the frame schoolhouse and 88.4 feet southeast from the corner of a frame store building. It is in line with two locust trees, 11.2 feet east of one and 60.5 feet west of the other. It is marked by a bluestone post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	°	′	
Southeast corner of Mrs. Montgomery's house (mark)	52	40.4	west of north
Northwest corner of James Talton's house	82	51.0	west of south
Northwest corner of schoolhouse	72	36.6	east of south

Floyd, Floyd County.—The station is in the northwest section of the town cemetery, about one-half mile south of the center of the town. It is 52 feet from the fence to the north and 156 feet from that to the west. It is marked by a limestone post 12 by 6 by 36 inches, projecting about 1 foot above ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Spire of Presbyterian Church (mark)	6	40.7	east of north
Base of flagpole on college	16	38.5	west of north
West gable of Howard's residence	38	13.6	west of north
Baptist Church	32	00.0	east of north
West gable of colored church	63	55.6	east of north

Gloucester, Gloucester County.—The station is located in the northeast corner of the schoolhouse grounds. It is 193 feet north by east of the northeast corner of the concrete school building, 63 feet west of the east board fence inclosing the grounds, and 65.6 feet south of the southeast corner of the shed for horses. It is marked by a granite post 6 by 6 by 30 inches, projecting 1 inch above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
South spire on Presbyterian Church (mark)	44	00.4	east of south
North spire on Presbyterian Church	44	08.8	east of south
Center of windmill at courthouse	55	14.5	east of south
Southeast corner of schoolhouse	33	30.0	west of south
Southeast corner of house west of station	80	03.9	west of south

Hampton, Elizabeth City County.—The station is in the southeast corner of the United States Soldiers' Home grounds. It is 48.3 feet from the inner edge of the breakwater, 59.4 feet from the edge of the driveway, and 73.6 feet from a pole supporting the electric-light wires. It is about 200 feet west of the east breakwater around the grounds. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass station marker in the top. The following true bearings were determined:

	°	′	
Middle flagpole on Hotel Chamberlain	51	36.2	east of south
Church spire at Fortress Monroe	60	24.7	east of south
Cupola of main building at Soldiers' Home	12	02.3	east of north
Flagpole at Soldiers' Home	64	17.8	west of north

Heathsville, Northumberland County.—The station is located on the courthouse grounds. It is about 186 feet nearly due north from the northeast corner of the courthouse, 75 feet northeast of the northeast corner of Mr. Bett's store and 24 feet west of the west edge of sidewalk. It is marked by a granite post 6 by 6 by 30 inches, projecting 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Northeast corner of bank (mark)	37	14.9	east of south
Northeast corner of base of Confederate monument	21	35.6	east of south
Southeast corner of Rice's Hotel	31	52.0	west of south
Northeast corner of jail	82	12.2	west of south

VIRGINIA—Continued.

Isle of Wight, Isle of Wight County.—The station is located inside the circle inclosing the Confederate monument. It is 13.4 feet northeast of the monument, 78 feet from the iron fence measured to the northwest, 65.5 feet from the east gate, and 86.5 feet from the south gate. The station is marked by a granite post 6 by 6 by 30 inches, projecting 2 inches above the surface of the ground and lettered U. S. C. &. G. S., 1912. The following true bearings were determined:

	° ′
Southeast corner of jail (mark)	33 38.9 west of north
Spire on belfry of schoolhouse	80 40.5 east of south
Southwest corner of hotel	79 56.7 west of north
East corner of tower of courthouse	38 26.3 west of north

Independence, Grayson County.—The station is located on the grounds of the county high school, 101 feet southwest of the southwest corner of the school building, and 123 feet north of the rail fence inclosing the grounds on the south. The station is marked by a granite post 6 by 6 by 30 inches, projecting about 4 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Center cupola on courthouse (mark)	89 40.7 west of north
Center shaft of Ruddy's windmill	75 58.6 west of south
F. M. Halsey's house cupola	86 01.9 west of north
Southeast corner of schoolhouse	65 32.5 east of north

King and Queen C. H., King and Queen County.—The station is on the public grounds about 200 feet north by east of the courthouse, near the spot where a Confederate monument is soon to be erected. It is 44 feet east of the main road, 28 feet from a telegraph pole to the northwest, and 23.6 feet and 42.6 feet from trees to the north and south, respectively. It is marked by a granite post 6 by 6 by 30 inches, projecting 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Top of water tank on windmill (mark)	59 04.1 east of south
Outer edge of chimney on Mrs. Haskin's house	37 08.0 east of north
Southeast edge of courthouse	23 53.4 west of south

King William, King William County.—The station is in the northeast corner of the courthouse grounds, 68 feet from the north fence, 35 feet from the east fence, 21.6 feet from a locust tree to the southeast, and 22 feet from a tree to the north by west. It is marked by a granite post 6 by 6 by 30 inches, projecting 4 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Southeast edge of chimney on courthouse (mark)	44 18.0 west of south
Southeast corner of jail	28 12.8 west of south
Northwest corner of house west of station	88 39.2 west of south

Lancaster, Lancaster County.—The station is located in the northwest corner of the courthouse yard, 86.5 feet from the northwest corner, 31.6 feet from the west fence, and 31.5 feet from the north fence. It is on the meridian line, 13.6 feet from the north meridian stone, which projects about 1½ feet above the ground. The station is marked by a granite post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
South meridian stone (center of letter A) (mark)	0 18.6 west of south
Northeast edge of courthouse	48 40.5 east of south
Southeast edge of Sanders's house	38 53.4 west of south

Lunenburg, Lunenburg County.—The station is marked by a stone which marks the northwest corner of the courthouse lot. It is a concrete block 8 by 8 by 23 inches, surmounted by a brass C. & G. S. plate and projecting 1 inch above ground. It lies 4 feet from the center of a footpath to the west of it and 16 feet from a small stream to the south of it. The following true bearings were determined:

	° ′
North gable of barn 200 yards distant (mark)	4 09.0 west of south
East gable of barn 200 yards distant	76 01.4 west of south
West gable of barn 300 yards distant	74 15.3 east of north
West gable of residence 250 yards distant	74 42.0 east of south
Northwest edge of jail	40 32.8 east of south

Lynchburg, Campbell County.—The station of 1910 was reoccupied. It is in the southeastern corner of the county fair grounds, about 1½ miles southeast of the town's center. It is 111.7 feet northwest from the fence bounding the grounds on the southeast and 141 feet northeast from the fence on the southwest. The station is marked by a granite

VIRGINIA—Continued.

post 5 by 10 by 24 inches, projecting 2 inches above ground, and lettered U. S. C. & G. S., 1910. The following true bearings were determined in 1910:

	°	′	
Flagstaff on Odd Fellows' Home (mark)	2	17.2	west of south
Southwest corner of grand stand	53	22.0	west of north
Upper shaft of a windmill	84	58.3	west of south

Mathews, Mathews County.—The station is located in the southeast corner of the schoolhouse grounds, 51 feet from the east fence, about 85 feet from the south fence, and 183 feet southeast of the southeast corner of the schoolhouse. It is marked by a granite post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Colored Baptist Church spire (mark)	43	07.3	west of south
Northeast corner of brick foundation of Mr. Garnett's house	52	08.8	east of south
Northeast corner of schoolhouse	16	24.4	west of north

Montross, Westmoreland County.—The station is located on the courthouse grounds, 130.6 feet southeast of the northeast corner of the courthouse, 25 feet from the east fence, 61 feet from the south fence inclosing the grounds, and 18.8 feet northeast of a small maple tree. It is marked by a granite post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Northeast corner of courthouse (mark)	47	13.0	west of north
Northeast corner of jail	20	14.7	west of north
Southwest corner of R. H. Hain's store	1	55.2	east of south
Northwest corner of Montross Bank	42	39.3	west of south

Saluda, Middlesex County.—The station is on the schoolhouse grounds, about one-fourth mile west of courthouse. It is 164.4 feet south of the southwest corner of the concrete school building and 83 feet east of southeast corner of the shed for horses. It is marked by a granite post 6 by 6 by 30 inches, projecting about 3 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Colored Baptist Church spire (mark)	85	32.7	east of north
Northwest gable of roof of Bob Stubb's house	39	31.8	east of south
Peak of Dr. Brown's house	74	07.4	east of south
Southeast corner of schoolhouse	48	47.9	east of north

Tappahannock, Essex County.—The station is located in the southeast corner of the schoolhouse grounds, about one-half mile west of the courthouse. It is 85 feet from the northeast corner of the schoolhouse, 36.9 feet from the east fence, and 84 feet from the south fence. It is marked by a granite post 6 by 6 by 30 inches, projecting about 2 inches above the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
First Baptist Church spire (mark)	50	09.0	east of north
South edge of west chimney	49	58.8	east of south
Southeast corner of schoolhouse	84	21.8	west of south

Warsaw, Richmond County.—The station is located in front of the schoolhouse about on a line projected westward from the south side of the building, and 94.6 feet from the southwest corner of the building. It is 104.6 feet from the northwest corner and 23.1 feet from a small locust tree to the west of station. It is marked by a granite post 6 by 6 by 30 inches, set flush with the surface of the ground and having a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
South edge of south chimney on Mr. Skate's house (mark)	55	43.8	east of north
Center of center chimney on Mr. Warner's house	20	12.4	east of south
Southeast edge of house to southwest	45	25.6	west of south

Yorktown, York County.—The station is on the schoolhouse grounds, which lie east of and adjoining the courthouse grounds. It is 69 feet east of the east fence inclosing the courthouse grounds, and 17.6 feet south of the north fence inclosing the schoolhouse grounds, 21 feet and 29 feet from two trees to the southeast and south, respectively. It is marked by a bluestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a brass station marker in the top. The following true bearings were determined:

	°	′	
Grace Episcopal Church spire	50	58.4	east of south
Northwest corner of Gloucester Bank	23	45.4	east of north
Northwest corner of courthouse	28	10.7	west of south

WASHINGTON.

Seattle, King County.—The new station of 1910 was reoccupied. It is in the eastern part of the grounds of the State University. It is 208.6 feet northwest from the northwest corner of the girls' dormitory and 198.7 feet southeast from the southeast corner of the boys' dormitory. It is marked by a granite post 48 inches long, 8 by 8 inches on top and 12 by 12 inches at the bottom, projecting 14 inches above ground, and lettered U. S. C. & G. S., 1903. The following true bearings were determined in 1910:

	°	′	
Center of wooden block at north top end of roof of Science Hall (mark)	76	03.2	west of south
Center of rod at top of north gable window on Denny Hall	80	31.8	west of north
Top of southwest edge of white water tank	41	41.0	west of north
Central point at top of roof of California Building	10	42.9	west of south

Willapa Bay, Pacific County.—Magnetic observations were made at a point 65.6 feet west of triangulation station East Base in the direction of West Base. The station is on the southeast side of Toke Point, about half a mile from its extreme end, at about high-water mark and 215 feet from the tree line. The triangulation station is marked by a galvanized-iron pipe set in cement.

WEST VIRGINIA.

Elizabeth, Wirt County.—The station is in the K. P. cemetery, about half a mile south of the courthouse. It is at the east edge of a pathway running north and south through the center of the cemetery, 48.7 feet from the south fence and 40.1 feet north of the northwest corner of the base of the monument of Thomas Watson. The station is marked by a white marble post 5 by 5 by 24 inches, projecting about 5 inches above ground and having a brass station marker in the top. The following true bearings were determined:

	°	′	
Small white building on a hill	25	06.1	west of north
West gable of small house	68	43.1	west of south
Peak of public-school building	33	55.4	east of north
Peak of three-story house	83	31.2	east of north

FOREIGN COUNTRIES.

BRITISH COLUMBIA.

Union 2.—The new station of 1906 was reoccupied. It is about 1,000 feet north of the old one, in a direct line to the church spire at Comox, on a low shingle spit across the small stream. It is marked by a dressed fir post 3 inches square, set about 30 inches underground, and projecting about 8 inches above the surface. A small heap of stones is placed around the post and the letters U. S. and a cross are cut in the top surface. The following true bearings were determined in 1909:

	°	′	
Lighthouse at southeast end of Baynes Sound (mark)	33	34.7	east of south
Church spire at Comox	18	44.8	west of north
Northeast corner of chimney of brick kiln	0	35.5	west of south

CANAL ZONE.

Chame Point.—The station is on a sand spit on the line between triangulation stations Chame and Otoque, about 125 meters from the former.

Changarmi Island.—The station is 154.9 feet from the triangulation station Changarmi, on the bearing 4° 46.′5 west of true south. It is marked by a half-inch copper bolt set in a flat outcropping rock. Cement is built up around the upper end of the bolt so as to make it secure. The following true bearings were determined:

	°	′	
Left tangent to San Jose Rock	74	15.6	east of north
San Jose triangulation station	74	30.9	east of north
Tortola triangulation station	26	10.9	west of south
Taboga triangulation station	2	56.9	west of south

Melones Island.—Magnetic observations were made at a point in line with triangulation stations Melones and Swing, about 80.4 feet from the former. Owing to the topography of the island, no natural objects were serviceable as marks, so Swing was used. The station was marked by a 4 by 4 inch pine hub, whose top extended about 6 inches above the surface of the ground. The true bearing of the line Melones to Swing as taken from triangulation computation is 49° 27′.4 west of north.

Naos Island.—The station is on the southeast point of Naos Island in Panama Roads. It is 8 feet from north bluff and 15 feet from the extreme point. The north tangents of Culebra and Flamenco Islands are nearly in range. The

CANAL ZONE—Continued.

station is about 20 feet above high water mark. The station is marked by a small concrete pier about 6 by 6 by 10 inches, set flush with the ground. True bearings were determined by solar observations as follows:

	° ′
First sharp projection in detached reef just to right of Changarmi Island Light	44 06.8 west of south
Right tangent to steel water tank on Culebra Island	36 28.1 east of south
Second haycock-shaped islet off Taboguilla Island	2 13.3 east of south
Taboga on summit of Taboga Island	14 14.8 west of south
Light on Changarmi Island	42 52.8 west of south

CUBA.

Habana.—The station at the villa of Colegio de Belen was reoccupied. The station is near a villa belonging to the college and about 3 kilometers south of the college. It is on the highest part of the hill back of the villa and is marked by stone column 2 feet diameter by 5 feet high. The tower of Colegio de Belen bears 0° 06′.9 west of true north. The center of Morro Castle Lighthouse bears 4° 30′.5 west of true north.

Habana, Las Cabanas Fortress.—The magnetic station is situated on the grounds in the vicinity of Las Cabanas Fortress, about 2 miles east of El Morro Light. The station is near one of the stone monuments, 6 feet high, on the boundary line of the property belonging to the Cuban Government. Observations were made 20 feet west of this stone in the direction of El Morro Light. The exact spot is marked by a pine stake, driven flush in the ground. The following true bearings were determined:

	° ′
El Morro Light	88 44.0 west of south
Vane on Observatorio National	19 23.3 west of south

MEXICO.

Acapulco.—The station of 1907 could not be located, so a new station was established as near the old one as possible. It is about 200 yards northeast of Fort San Diego on a small projecting point visible from the anchorage. The shore line is steep and rough, but there is a landing just to northward of the point. It is on a bluff about 30 feet above the water, about 20 feet back from the point, and 17 feet from the edge of the bluff on either side. The largest outside rock south of the station is in range with the lighthouse on Grifo Island. The station is marked by a small concrete pier about 10 inches in diameter and 12 inches deep and having a wooden plug embedded in concrete to mark the center. The following true bearings were determined:

	° ′
Lighthouse on Grifo Island	10 00.9 west of south
Right tangent to sentry box at Fort San Diego	86 54.9 west of north
Left tangent to bowlder off Point Grifo	45 10.4 east of south

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